

More Money, More... Inflation?

A Review of Inflation and its Causes

By Emily Trautman, Senior Economist

People closely tracking their budgets may have noticed something – prices are rising. This overall increase in prices, or inflation, is not new. It's normal to see small, steady increases in the prices paid on goods and services. Average prices increased about 2% each year since 2000. However, prices increased faster in recent months. Some people view this change as the start of a new long-term trend, pointing to substantial changes in the money supply as evidence. Others suggest these price changes are transitory, driven by supply shortages. They argue that the economy needs time to adjust from the COVID-19 pandemic shock. To help understand inflation and the current events surrounding it, this EAG examines what inflation is, how it's measured, why it occurs, and the overall trends.



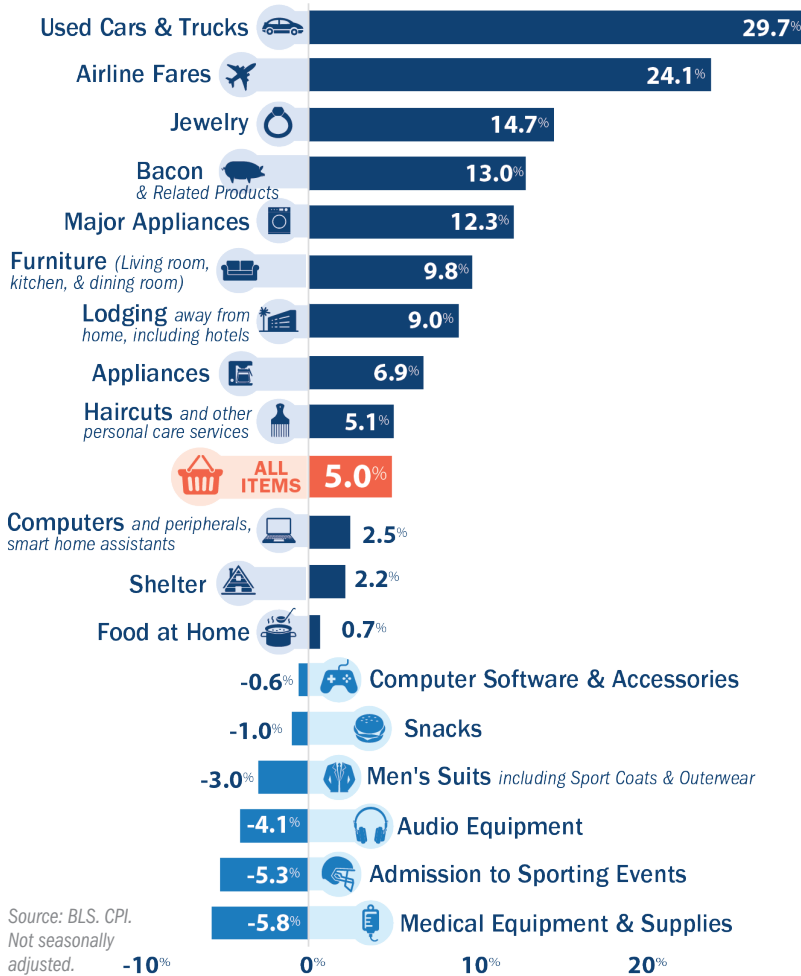
What is Inflation? How Is Inflation Measured?

Inflation refers to the general increase in the price of goods and services across the economy. The most reported measure of inflation is the change in the Consumer Price Index for Urban Consumers (CPI-U or CPI), published by the Bureau of Labor Statistics (BLS).¹ This price index is created from a BLS survey that asks consumers what they purchase. Responses are summarized into a “basket” of goods and services that represent what the average person buys. Prices are then tracked for this basket, with the national average making up the CPI. The May 2021 CPI shows average prices were up 5.0% compared with one year prior. Not everyone will experience this same reported inflation. Some will pay more, and some will pay less depending on their location and their individual spending habits.

A key part of inflation is that it represents the average increase of all prices. Not all prices change consistently with the reported level of inflation. **Figure 1** shows May 2021 year-over-year price increases for select goods and services compared with the reported measure of inflation of 5.0%. The price of used cars, airlines, and jewelry increased significantly faster than reported inflation, while medical equipment and supplies, sporting event admission, and men's suits grew slower than reported inflation.

¹ Other common price indexes used to measure inflation are: The Personal Consumption Expenditure Index (PCE), the Federal Reserve's preferred measure of inflation; the Producer Price Index (PPI), which tracks items bought by businesses; and the Consumer Price Index for Wage Earners (CPI-W), which tracks items commonly purchased by workers.

Figure 1: Percent Change in Prices
(May 2020 to May 2021)



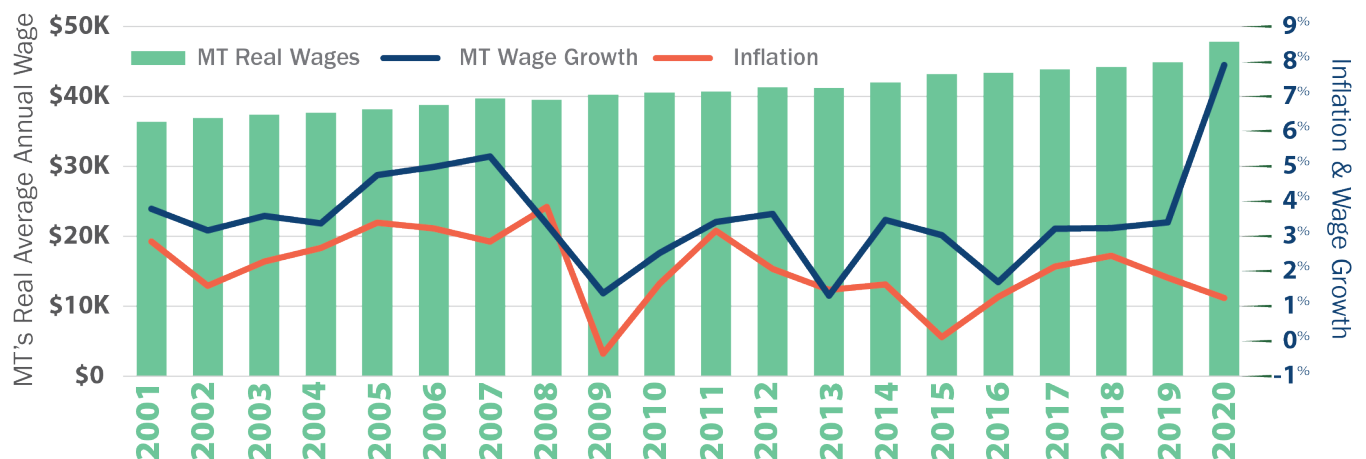
When is Inflation Good? When is it Bad?

Small, steady increases in prices are normal. When workers, businesses, and other entities expect this consistent level of inflation they can set prices appropriately and negotiate wages fairly. One negative view of inflation is that it can decrease purchasing power if prices rise without a corresponding increase in incomes, decreasing a person's standard of living. However, Montana's wages have grown faster than inflation for most of the past twenty years, as shown in **Figure 2**. Wage growth that is faster than inflation is called real wage growth.

Higher than expected inflation affects lenders, borrowers, and owners of wealth differently. People with mortgages, student loans, car loans, and other types of loans enter long-term contracts with a set interest rate based on the expected rate of inflation and a premium for the risk involved. Higher than expected inflation hurts lenders because the contracted interest rates

are not high enough to compensate for actual inflation, but it benefits borrowers because they pay less in real terms. Higher than expected inflation hurts owners of wealth if their investments are not earning a return higher than actual inflation.

Figure 2: Inflation and Montana's Wages



Source: Quarterly Census of Employment and Wages, inflated using BLS CPI-U

Rapid inflation and hyperinflation are not normal conditions and are bad for the economy. Rapid inflation is sustained fast growth in the overall price level, which causes people to spend rather than save. The basic thought is that it's best to spend money now, because it will be worth considerably less soon. This additional spending increases immediate demand, pushing prices up even higher if production can't match demand, and creating a cycle that's hard to break. One way to break the cycle is for interest rates to rise, which slows investment and overall demand. Lower demand helps lower prices. Inflation spiked in the U.S. in the 1970s and 1980s, reaching nearly 15% in the spring of 1980. High interest rates eventually brought inflation under control, but also triggered a recession. Hyperinflation is an extreme scenario of rapid inflation. Examples include Germany in the 1920s, Zimbabwe in the late 2000s, and Venezuela right now. Venezuela's estimated inflation rate peaked at 2.6 million percent in January 2019.²

Deflation is usually thought to be worse than hyperinflation. Deflation is a sustained fall in prices, which delays purchases. After all, why buy something today when the price will be lower

tomorrow? Delayed purchases reduce overall demand, which decrease prices even further. The result is a continuous cycle of falling prices and falling demand. To fix deflation, interest rates fall which spurs investment and increases demand. However, interest rates do not typically fall below zero.³ When interest rates fall to zero the economy can longer self-correct, which is known as a "deflation trap." The U.S. experienced deflation during the Great Depression. Between 1929 and 1933, average prices fell 25%.⁴

U.S. Inflation – 2001 to 2021

Figure 3 shows monthly inflation rates over the last twenty years. Inflation varies from month to month, but it has averaged 2% growth over the last twenty years. This growth is not a coincidence – the Federal Reserve is tasked with ensuring stable prices, and they use monetary policy to influence the rate of inflation to remain near 2%. Although inflation averaged 2% over the last two decades, it's been consistently lower since the 2007-2009 recession. One reason the Federal Reserve sets its target at 2% inflation rather than no inflation is to avoid the risk of deflation.⁵

FIGURE 3: Inflation (percent change in CPI from one year prior)



Source: BLS. CPI.

- 2 Vyas, Kejal. "Venezuela Quietly Loosens Grip on Market, Tempering Economic Crisis." *The Wall Street Journal*. 17 Sep. 2019. <https://www.wsj.com/articles/venezuela-quietly-loosens-grip-on-market-tempering-economic-crisis-11568718002>.
- 3 Although not typical, negative interest rates have been used by the Bank of Japan, the European Central Bank, and several other authorities.
- 4 Williams, John C. "The Risk of Deflation" Federal Reserve Bank of San Francisco. 27 Mar. 2009. <https://www.frbsf.org/economic-research/publications/economic-letter/2009/march/risk-deflation/>
- 5 Engemann, Kristie. "The Fed's Inflation Target: Why 2 Percent?" Federal Reserve Bank of St. Louis. 16 Jan. 2019. <https://www.stlouisfed.org/open-vault/2019/january/fed-inflation-target-2-percent>

Inflation during the past few months has been faster than normal. Prices in April grew by 4.2% compared with one year prior, and by 5.0% in May compared with one year prior. Part of the increase is due to a “base” effect, meaning that May 2021 is compared to May 2020, a month of lower than normal prices. Demand for goods and services slowed during the early months of COVID-19 pandemic, slowing price changes last spring. May 2021 inflation would have been about 2.5% if inflation had grown normally, closer to the long-term trend. However, this “base” effect does not explain all the price increase. Prices went up 0.6% from April to March, faster than the average month-to-month increase of 0.2%.

What Causes Inflation?

The main cause of inflation is when the overall demand for goods and services increases faster than the economy can produce additional goods and services. This is often described as “too many dollars chasing too few goods.” A growing economy can cause inflation. A growing economy leads to increased employment, rising incomes, and strong consumer confidence. This combination allows consumers to feel comfortable spending instead of saving, increasing demand for most goods and services. If businesses cannot immediately increase production to match demand, prices rise.

securities. **Figure 4** shows the increase in the U.S. money supply M2, which consists of cash, checking and savings deposits, and other liquid assets. The substantial increase in the money supply is one reason people expect high inflation.

However, others argue that the increased money supply does not guarantee rapid inflation. New money must be spent for the price level to rise. While cash-strapped individuals spent their stimulus payments right away, other risk-averse individuals and businesses saved their stimulus money and hoarded cash during the past year. Market closures and stay-at-home orders also triggered higher than

FIGURE 4: M2 Money Stock (percent change from one year prior)



Source: Board of Governors of the Federal Reserve System (US). M2 Money Stock. Retrieved from FRED, Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/M2SL>. June 3, 2021.

An increase in the money supply traditionally leads to inflation if the new money in circulation is being spent. Since the COVID-19 pandemic began, expansionary monetary policy has increased the money supply by about 30%.⁶ Expansionary monetary policy includes the Federal Reserve’s purchases of Treasury bonds and mortgage-backed

normal savings. **Figure 5** shows the personal savings rate was at an all-time high over the last year. People saved 27.7% of their money in March 2021. This high level of savings and low level of spending is one reason inflation remained stable. As people become vaccinated and life returns to normal, spending may

⁶ Board of Governors of the Federal Reserve System. Money Stock Measures. <https://www.federalreserve.gov/releases/h6/current/> Calculation is the Feb 2020 to Apr 2021 seasonally adjusted change in M2.

FIGURE 5: Personal Savings Rate

Source: U.S. Bureau of Economic Analysis. Personal Savings Rate. Retrieved from FRED, Federal Reserve Bank of St. Louis. <https://fred.stlouisfed.org/series/PSAVERT>. June 3, 2021

pick up. However, unemployment is still relatively high across the U.S., signaling the economy is not producing at maximum capacity. If U.S. production can meet demand, then inflation could remain low.

High demand isn't the only cause of rising prices - supply disruptions and costly inputs also cause increased prices of select goods and services. Global supply chains were disrupted over the last year as factories shut-down or slowed to prevent the spread of COVID-19. This slowed growth created a shortage of some goods, which increased prices. Natural disasters also impact supply. More recently, a fire in a Japanese factory and severe weather in Texas significantly reduced the supply of semiconductors, an input for new cars. The result is decreased supply of new cars, and significant price increases in used cars. Rising prices of used cars accounted for over one-third of the May 2021 inflation rate.⁷

Expecting inflation is another cause of inflation. Inflation has remained low over the last couple of decades partially because the Federal Reserve has established its commitment to keeping prices stable, and people have come to expect it. Another way to say this is that inflation expectations are "anchored" at 2%. When inflation expectations are well anchored, people are less likely to respond

to temporary price changes. When inflation expectations are not well anchored, then businesses and workers react to short-term price increases by raising long-term prices and wages.⁸

What About Housing?

Observant readers will notice the price of shelter rising only 2.2% in figure 1, contradicting the storyline that home values are out-of-control. However, the purchase of a home is considered an investment good, and these prices are therefore excluded from the CPI. Instead, the CPI values shelter using the combination of actual rent paid and price estimates for what the home could be rented. Shelter makes up a large share of the CPI, accounting for 33% of the index.

However, the value of real estate has increased faster than the shelter estimates suggest. Using the House Price Index (HPI), U.S. home prices increased an average of 12.7% in the first quarter of 2021.⁹ Possible explanations for the difference between the CPI's shelter and the HPI's real estate include rental prices lagging real estate prices, and underestimates of rental prices for homeowners property.

⁷ BLS. CPI. Apr 2021. <https://www.bls.gov/news.release/cpi.nr0.htm>

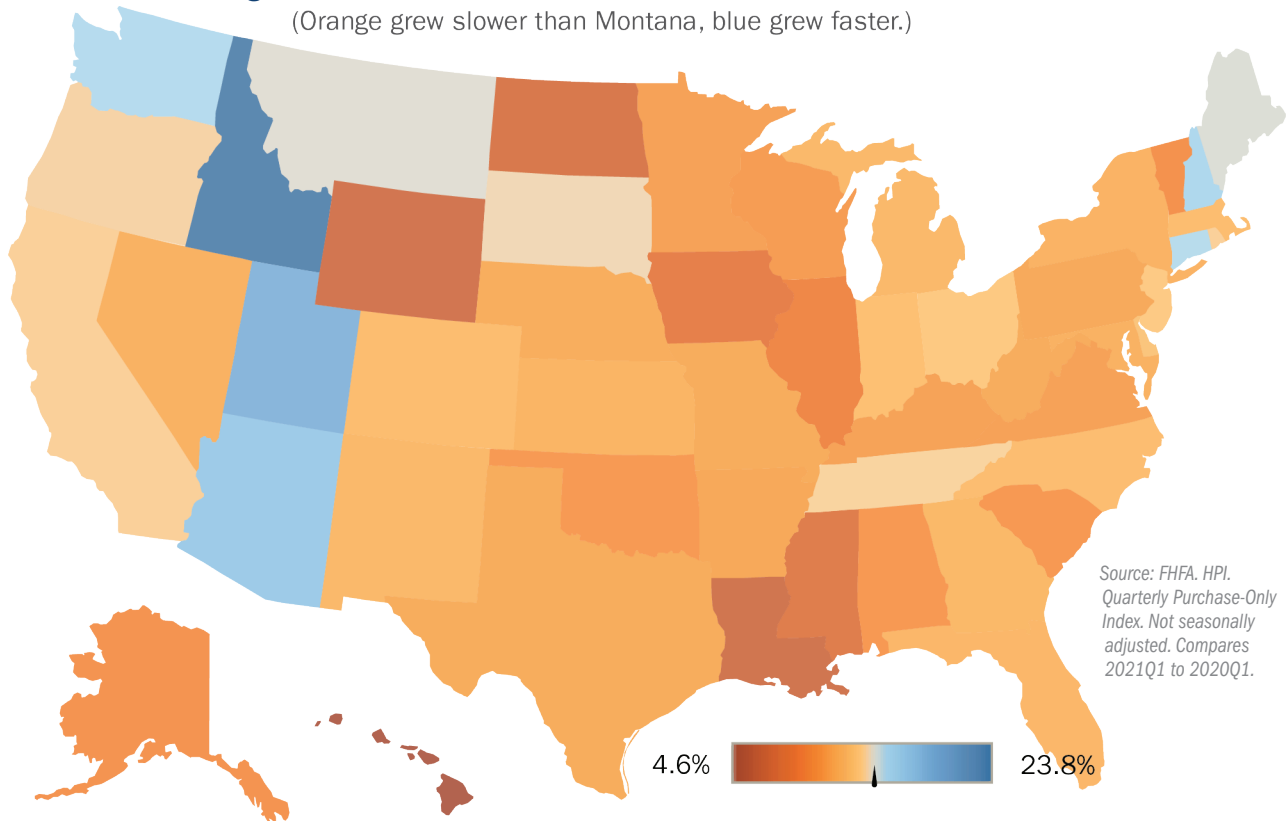
⁸ Powell, Tyler, and David Wessel. "What are inflation expectations? Why do they matter?" Brookings Institution. 30 Nov. 2020. <https://www.brookings.edu/blog/up-front/2020/11/30/what-are-inflation-expectations-why-do-they-matter/>

⁹ FHFA. HPI. Quarterly Purchase-Only Index. Not seasonally adjusted. Compares 2021Q1 to 2020Q1.

Montana's home prices increased even faster at 15.1%, the 8th fastest out of all fifty states. Low interest rates and supply shortages are the primary cause of housing price increases.¹⁰ **Figure 6** compares Montana's home price increases to those of other states. States shaded in orange had slower housing price growth than Montana, while those shaded in blue had faster growth.

FIGURE 6: Housing Price Increases Relative to Montana

(Orange grew slower than Montana, blue grew faster.)



Conclusion

Inflation will continue to be a topic of interest over the next year. The past few months of higher than normal inflation has sparked curiosity and debates over the cause of price increases and the long-term consequences. The “base” effect will continue to affect reported inflation numbers in the coming months, but a fundamental change beyond the base effect is what’s of interest. It’s worth noting that the Federal Reserve believes recent price increases are largely the result of transitory factors, such as supply shortages related to the COVID-19 pandemic. However, they will adjust policy as needed to anchor long-term inflation expectations at 2%.¹¹ As the most recent economic indicator to stray from its long-term trend in the aftermath of the COVID-19 pandemic, inflation will be closely watched in the coming year.

10 Khater, Sam, Len Kiefer, and Venkataramana Yanamandra. "The Housing Supply Shortage: State of States." Freddie Mac. Feb. 2020. <http://www.freddiemac.com/research/insight/20200227-the-housing-supply-shortage.page>? Data suggests Montana is one of 29 states with a housing deficit, although Montana's deficit is smaller than most of the other 29 states.

11 Board of Governors of the Federal Reserve System. Federal Reserve issues FOMC Statement. 28 Apr 2021. <https://www.federalreserve.gov/newsevents/pressreleases/monetary20210428a.htm>