BUSINESS GUIDE

CFO Guide: 4 Inflation Metrics to Watch Now

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Inflation is here, and unless you were managing a business in 1982, you're not used to planning for it. Inflation averaged just 1.7% in the 10 years prior to 2020 – that is below the Fed's 2% objective and was a key factor in its loose monetary policy. Inflation jumped to a four-decade high of 7% at the end of 2021, and now the Fed is re-evaluating its policies.

It has business leaders worried. Nearly 60% of respondents ranked inflation as their top concern in CBIZ's Main Street Index survey, conducted between Nov. 30 and Dec. 31, 2021. And in The Conference Board research group's survey of 900 CEOs, more than half said they expect price pressures to persist until at least mid-2023.

For business leaders, this means that tracking external inflation metrics is now a priority, as it allows them to ensure the company is adjusting appropriately to swings in prices of goods and services. Here, we'll outline the three main measures for tracking the inflation rate provided by the federal government, as well as supplemental indicators that could prove helpful in predicting trends and guiding decisions.

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CHAPTER 1

Consumer Price Index

Overview

The most widely-quoted measurement of inflation, the Consumer Price Index, or CPI, is published by the Bureau of Labor Statistics (BLS) monthly. It measures the average change of prices paid for a basket of consumer goods and services, gauging inflation as experienced by consumers in their day-to-day living expenses.

The CPI is especially notable because it's used to adjust Social Security payments and as the reference rate for some financial contracts such as Treasury Inflation-Protected Securities (TIPS) and inflation swaps. For consumer-facing companies, it provides guidance on what the market will bear in terms of price increases and can therefore be an important part of scenario planning. Raising prices significantly more than the inflation rate will most likely result in consumers cutting back on or cutting out your product.

Data Source

The BLS uses a survey of American families called the Consumer Expenditure Survey to determine which items go into the basket and how much weight to assign to each item.

Calculation

The CPI is based on the fixed-weight Laspeyres price index and calculated using this formula:

CPI = Cost of Market Basket in Given Year / Cost of Market Basket in Base Year x 100

What Is the "Basket"?

Inflation measures often use the term "basket" to refer to a select mix of goods and services. Also called a market basket, consumer basket, representative basket or commodity bundle, this is a rarely changed list of items whose prices are tracked over time to measure inflation in a given economy or market.

The CPI basket includes over 200 categories of goods and services, which the BLS classifies into eight major groups: food and beverages, transportation, housing, medical care, apparel, recreation, education and communications and other goods and services. While the CPI includes taxes that are included with the purchase of specific goods and services, it does not include unrelated taxes like income and Social Security taxes. It also does not include investment items like stocks, bonds and real estate.

For most consumer price indexes, the base year reference period is currently 1982-1984. So, the BLS will set the average index level, representing the average price level, for that 36-month period equal to 100. It will then measure changes in relation to that figure.

Population

The CPI reflects the spending patterns of two population groups: urban consumers and urban wage earners/clerical workers.

The BLS defines "urban consumers" as peoplein households in all areas of the United Statesexcept those in rural nonmetropolitan areas, in farm households, on military installations and in institutions such as prisons and mental hospitals. This represents about 94% of the totalUS population.

"Urban wage earners and clerical workers" refers to households in which more than half of the income comes from clerical or wage occupations, or those paid an hourly wage, and at least one of the household's earners has been employed for at least 37 weeks during the previous 12 months. This group represents approximately 28% of the total US population and is a subset of urban consumers. This calculation is used annually to set the Social Security cost-of-living adjustment.

Variations

There are several variations of the CPI, most notably the Core CPI, CPI-U and CPI-W.

- Core CPI: Excludes food and energy due to their volatility
- CPI-U: Takes into account only urban consumers
- CPI-W: Reflects only urban wage earners and clerical workers

The BLS also provides a seasonally adjusted CPI, which removes the effects of seasonal factors such as weather, the school year, production cycles and holidays.

Supplemental Indicator: Treasury Inflation-Protected Securities (TIPS)

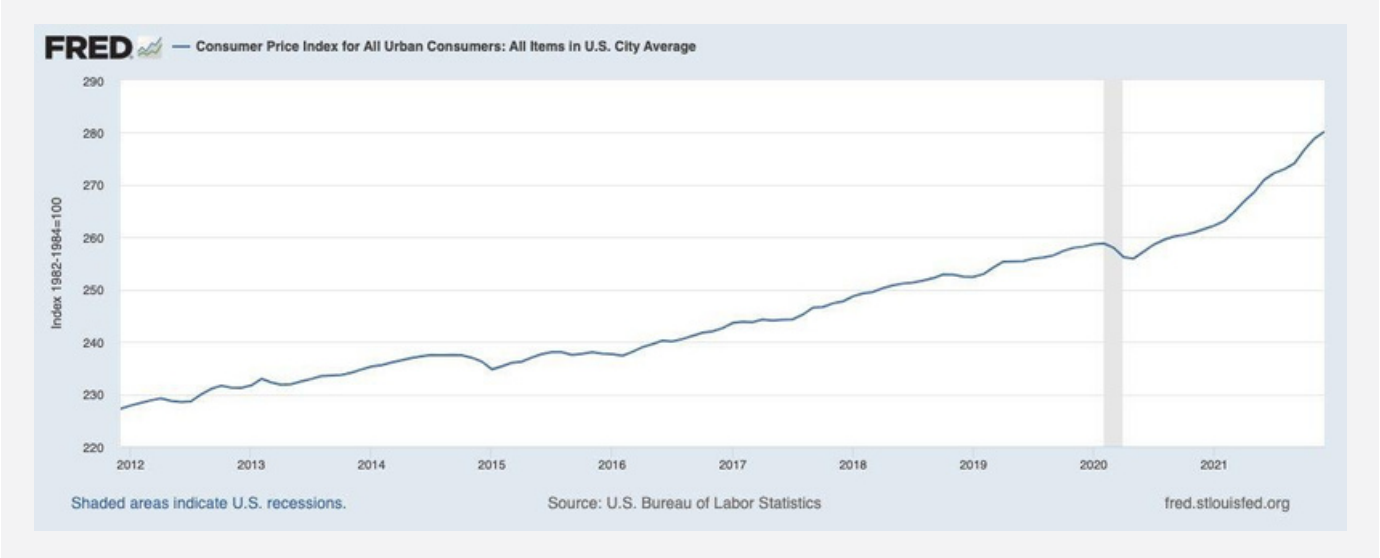
When tracking longer-term inflation trends, Treasury Inflation-Protected Securities, or TIPS, can provide valuable insights. TIPS are U.S. Treasury-issued bonds whose value moves with inflation as measured by the CPI and are available with 5-, 10- and 30-year maturities. If inflation doesn't materialize while TIPS are held, the utility of holding TIPS decreases. Tracking investor sentiment and activity around TIPS indicates the anticipated duration of inflation. If investors expect inflation to die down, activity around TIPS will decrease in turn.

Limitations

While it is the most common economic measure of inflation, the CPI has its limitations. The standard version of the CPI is the most all-encompassing but still isn't reflective of the entire population since it's based on urban consumers.

It also fails to reflect substitution bias, the phenomenon in which price changes drive changes in consumer buying behavior. For example, a consumer might choose to buy lower-pricedclothes or shift purchases away from clothes and toward food as inflation picks up. Because expenditure weights are held constant for 24 months, the CPI doesn't immediately reflect these shifts in consumer behavior.

The CPI also takes time to account for any new innovation. So even if a newer product represents a considerable portion of consumer expenditures, it may be years before it is included in the economic indicator.



This chart shows the BLS's CPI over the past decade. The drop in 2015 is coincident with a significant drop in oil prices. In 2020, the pandemic response resulted in a short but sharp recession; a sharp drop in oil prices affected the CPI again.

CHAPTER 2

Personal Consumption Expenditures Price Index

O ver v iew

Another commonly-used indicator of inflation is the Personal Consumption Expenditures Price Index or PCEPI, also referred to as the PCE Price Index. It serves as a measure of the prices that people living in the US, or those buying on their behalf, pay for goods and services. Released monthly by the U.S. Bureau of Economic Analysis (BEA) in its Personal Income and Outlays report, the PCEPI is the Federal Reserve's preferred inflation indicator when setting monetary policy.

Data Source

The PCEPI is based on BEA data around personal consumption expenditures collected from a wide range of sources including the U.S. Census Bureau, administrative and regulatory agencies and private organizations such as trade associations. The BEA determines the PCEPI by adding up dollars spent on all goods and services in its basket and comparing the total to the last month's figures.

Scope

The PCEPI includes spending by and on behalf of people living in the US. "Spending on behalf of a consumer" can include relevant spending by the government, employers or nonprofits. For instance, whereas the CPI only includes consumer health spending, the PCEPI includes money spent by health insurance organizations.

Calculation

The PCEPI is calculated by adding up the current dollar value of PCEs in the BEA's basket and comparing that to the total from the prior period's figures. The BEA uses a price deflator to compare the value of all goods and services produced in the current period to the prices in the base period. The result is a measure of the change in consumers' economic activity.

The PCEPI is based on the Fisher-ideal formula, which allows for changes in consumer behavior and changes that occur in the short term, preventing substitution bias.

The PCEPI is considered to more accurately reflect how prices affect consumer behavior. The modified Laspeyres formula used for the CPI is updated only every two years, so it assumes people continue buying the same items for a longer time period. As a result, the CPI's reported inflation rate is often higher than the PCEPI's. For example, the CPI-U increased an average 1.7% per year from 2010 to 2020, while the PCEPI increased an average 1.5% per year.

Population

Unlike the CPI, which only accounts for urban consumers, the PCEPI is considered representative of the entire US population as it covers both urban and rural consumers.

Versions

The PCEPI too has several versions, most notably the PCE Price Index, Excluding Food and Energy, also known as the Core Personal Expenditures Price Index (CPCE). The Federal Reserve tends to direct the majority of its focus here.

Limitations

The PCEPI is released monthly. However, some of the data sources used, like the GDP, are only released quarterly. In order to fill the gap, the BEA makes estimates based on other data sources like retail sales reports.

Unlike the CPI, which uses data reported straight from consumers, the PCEPI uses a range of data from households, nonprofits, corporations and the government. Depending on what you want to know, that additional data may not make the numbers more accurate for your purposes.

The PCEPI can also be substantially revised to adjust for factors like substitution bias. While beneficial in some scenarios, it gives an edge to the CPI for some purposes like contract indexation and TIPS.

More Resources

- How to Increase Prices Without Losing Customers. If your team is deciding whether to pass inflation-related costs on to customers, then you're not alone. Get the guide to raising prices while keeping your client base.
- 3 Action Items for More Data-Driven Business Decisions. A mass of data from the economy's wild two years should be fueling your business decisions. If not, now's the time to make it happen.
- Scenario Planning for What Comes Next. In this free on-demand recording, other business leaders discuss how they're using scenario planning models to better work through short-term challenges and plan for an unpredictable future.

Here's the BEA's chart of PCEPI over the past decade. Dips in 2015 and 2020 and flattening in 2018 are coincident with sharp drops in oil prices.

CHAPTER 3

Producer Price Index

Overview

Released monthly by the BLS, the Producer Price Index, referred to as the PPI, measures the average changes in prices that domestic producers receive for their goods and services. Unlike other indicators, the PPI gauges inflation from the viewpoint of the industries that make the products, instead of the consumer viewpoint. Unlike the CPI or PCEPI, which are both lagging indicators, the PPI is a leading indicator of inflation. As such, it's a great aid to scenario planning. In recognition of the value in planning, the BLS gets very granular in its calculations so that business analysts have data specific to their industry and need.

Data Source

The BLS collects PPI data. It typically selects producers by systematically sampling a listing which all firms file with the Federal-State Unemployment Insurance Program.

Once a business is selected, a field economist narrows the scope to specific goods or services for which prices will be reported. The selected businesses then report prices monthly until a new sample is selected for the industry, usually after seven to eight years. Each month, the BLS receives over 100,000 prices from 25,000 reporting companies.

Supplemental Indicator: Commodity Costs

If the PPI is a leading indicator, then commodity costs are the lead-in to the leading indicator. As prices for materials rise, costs for producers rise. These costs tend to get passed down to the consumer, raising both CPI and PCEPI.

By tracking commodity costs, particularly around oil, companies can get a sense of where inflation is headed. However, narrowing the scope to the relevant materials for the business is of course a better gauge of industry-specific inflation. Numerous sources provide commodity cost tracking, including Bloomberg, the St. Louis Federal Reserve and, on a global basis, the IMF. Also, lots of exchanges trade futures for most every commodity used in business. In the US, the Chicago Mercantile Exchange Group comprises the largest set of exchanges including the Chicago Board of Trade and the New York Mercantile Exchange.

Scope

The BLS produces approximately 10,000 PPIs for individual products and groups of products each month, covering about 535 individual industries and over 4,000 specific products. That data is divided into three categories:

- Industry Level Classification: Measures the cost of production at an industry level. Published in accordance with the North American Industry Classification System (NAICS).
- Commodity Classification: Measures the cost of production based on product similarity, end use or material composition. Industry of origin does not play a role. The classification system used is unique to PPI and publishes more than 3,800 commodity price indexes for goods and about 900 for services.
- Commodity-Based Final Demand-Intermediate Demand (FD-ID): Regroups commodity indexes into sub-product classes that look at the buyer of the products. Final demand measures price change for commodities sold for personal consumption, capital investment, government purchases and exports. In contrast, intermediate demand measures the price change for goods, services and construction products sold to businesses as the elements of production.

Calculation

Like the CPI, the PPI uses a modified Laspeyres formula, which compares the base period of revenue for a set of products to the current period revenue for the same set of products.

Mathematicians and economists will delight in the PPI formula:

$$I = [(\Sigma QOPO\ (Pi/PO)) / \Sigma QOPO] \times 100$$

P
o shows base year commodity price; Pi is current commodity year price; and Q
o is quantity of commodity sold during the base year. Currently, some PPIs have an index base set at 1982 = 100, while the remainder have an index base that corresponds with the month prior to the month that the index was introduced.

Boiled down, the formula divides a representative basket of goods by a base price for the same basket. A result of more than 100 shows how much the price has increased since the base price was set. A number below 100 indicates the price has declined.

Sample items are also weighted by size and importance in two steps. First, individual items are weighted by the producing establishment's revenue for the product line. Then, when the individual goods and services are combined to create aggregate indexes, the method for weighting can depend on whether they're classified by industry, commodity or FD-ID. However, the data used to establish weighting comes primarily from the Census Bureau's Economic Census and are updated every five years.

Population

PPIs are published for the output of almost all industries in the goods-producing sectors of the US economy. While more indexes for the services sector are gradually being introduced, the PPI program currently covers approximately 72% of the service sector's output, according to the BLS.

Variations

The BLS publishes some seasonally adjusted indexes in addition to the unadjusted versions. Seasonally adjusted versions include:

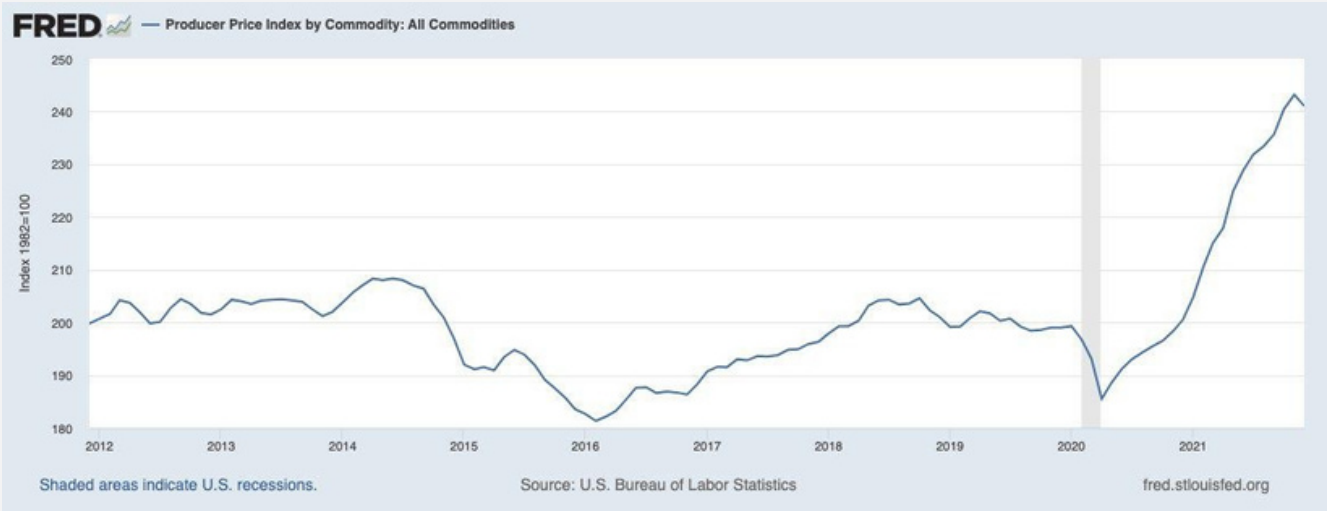
- All FD-ID indexes
- Certain three, four and six-digit commodity classification series, should they show seasonality that is supported by economic rationale

Indexes for two-digit commodity groupings and eight-digit individual commodities, as well as industry classified indexes, do not have seasonally adjusted versions.

There is also the Core PPI, which excludes the more volatile components of food and energy.

Limitations

As noted previously, the PPI only accounts for about 72% of services. It also doesn't cover imports.



Here are this decade's PPI for all commodities as calculated by the BLS. Drops in 2015, 2016 and 2020 mirror significant drops in oil prices.

CHAPTER 4

The Employment Cost Index

Overview

To this point, we've discussed measures of goods and services, as well as the pricing of both finished goods and materials that go into finished goods, as lagging and leading indicators of inflation. The cost of labor for the sampled goods and services is obviously baked into the prices discovered in creating the indexes. But as every business leader can attest, the effect of labor costs on the price charged is not an efficient factor to analyze. Most businesses do their best to absorb some labor costs, often opting to pay more to fill certain roles instead of raising prices.

That makes the BLS's Employment Cost Index a very good leading indicator of inflation pressure, particularly now as the available workforce isn't meeting the demand for workers. BLS provides a detailed explanation of ECI, covering its methodology and scope. The index is formulated to look well beyond hourly rates paid to workers and into benefits that include health care, paid leave, retirement savings, severance, stock plans and more.

The Fed also creates measures that go beyond the BLS's average hourly earnings (AHE) metrics with its own index called common wage inflation (CWI). CWI shows lower quarter-to-quarter variability and tends to predict wage inflation to be a bit higher than other indexes. CWI is truly a macroeconomic indicator intended for policymakers' use. For business leaders, that makes it a good index to watch, but likely not as useful as ECI, which shows quarterly fluctuations pertinent tobusiness planning.

Data Source

As the name indicates, collecting data for the Employment Cost Index is a primary function of the BLS. The BLS's National Compensation Survey is an ongoing effort that involves surveying thousands of organizations about their labor costs in tens of thousands of job categories.

Aggregate indexes like ECI and the related Employer Costs for Employee Compensation are calculated quarterly and released about two months after the subject quarter ended.

Scope

As mentioned, the National Compensation Survey informs BLS data down to fairly precise job titles. Interested in compensation data on accountants and auditors in your area? Find that job category in the Standard Occupational Classification system, and you'll see that the job code is 13-2011. Put that into the BLS search tool, and you'll get a number of resources. The top one offers a page of rich information on that job title in various industries and geographies. The challenge is that the data is from 2020, so you'll need to combine it with other data sources to understand movement in compensation for that job. The BLS releases new data 10-12 months after the date of estimate. So, 2021 data will be released in the spring of 2022.

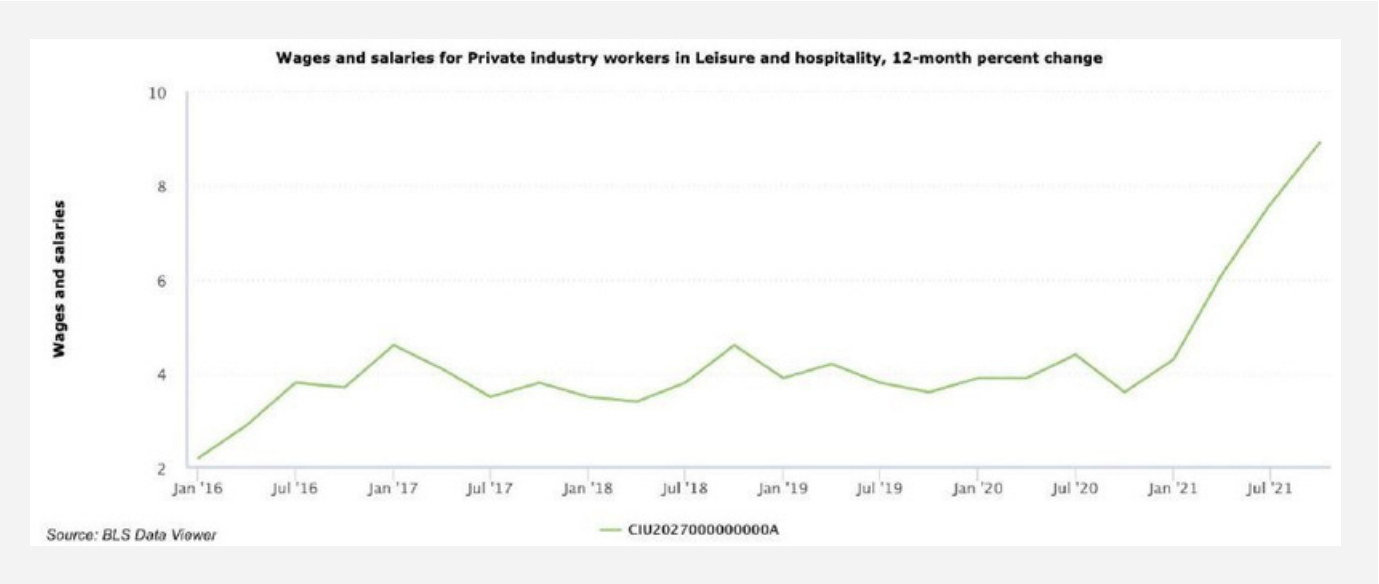
The State of Play

That other data will be hard to find. Job sites and HR organizations have some, but as it stands, at least now in the US, finding accurate and current salary data is very difficult since that data isn't regularly disclosed.

The US has seen a shift in practices on salary transparency over the past three years. At one time, discussing pay with colleagues was often forbidden by employers. The National Labor Relations Act made the practice illegal. Now, Colorado, Rhode Island, Connecticut and Nevada are requiring that salary ranges accompany job posting in their states. New York City joined the club in 2022, requiring that postings from any company with more than four employees list a salary range. Other states have laws requiring that employers disclose pay ranges when prospective employees ask.

Informing Strategy

While it would be great to know the movement in compensation for precise job titles over the past year when you're hiring into vacancies, that level of precision is not always required for planning purposes. You can find BLS employment cost trends data on an industry by industry basis, which typically lags by a quarter. The chart below shows the sharp increase in total compensation for hospitality workers in the past 18 months.



Wages and salaries for leisure and hospitality workers rose 8.9% in the 12 months prior to Q4 2021, according to BLS data.

The Bottom Line

This bout of inflation will be with us for a while. However, by tracking the right indicators, businesses can take action to battle its effects.

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