Introduction

This edition of Kevin's Corner uses data from the Bureau of Labor Statistics' (BLS) Consumer Price Index to review the impact of changes in the price level over time. As the price level increases households need more nominal income to purchase a basket of goods. In recent months the price level has been increasing at the fastest rate in forty years.

Sources

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Indexes are available for the U.S. and various geographic areas. All data in this report is seasonally-adjusted unless otherwise noted.

Understanding the Consumer Price Index

The CPI measures inflation as experienced by consumers in their day-to-day living expenses. CPI indexes are used for a variety of purposes including to adjust income eligibility for government assistance, federal tax brackets, federally mandated cost-of-living increases, private sector wage and salary increases, poverty measures, and consumer and commercial rent escalations.

The index is created by first calculating the price of the basket of goods purchased by a typical consumer for a specific time period ("the base year") and setting that value to 100. Current CPI calculations use the average of 1982 to 1984 as the base period. Any value greater than 100 indicates that the basket of goods and services cost more than the 1982-84 average while any value lower than 100 indicates the basket cost less. A value of 50 indicates that the basket costs ½ of its 1982-84 average while a value of 200 indicates the basket costs twice as much. Because the US has experienced low levels of inflation during most periods since World War II the value of the CPI generally increases over time. The percent change between the same months in consecutive years is reported as the inflation rate for that period. For example, if the CPI increased from 200 to 210 over the year the change in the CPI would be equal to ((210 – 200)/(200) = .05 or 5%.

CPI levels across geographies are not comparable. This is because each reported value of the CPI for a region is indexed to the cost of the CPI basket of goods *in that region* during 1982-84. CPI levels and changes for each geography are unique to that geography.

For purposes of this review we rely on the CPI for all Urban Consumers (CPI-U or US City Average). The CPI-U data series quoted here starts in January 1947. Compared against the current 1982-84 base period the CPI was 21.48 during that first month. As of March 2020 it stands at 287.7. One interpretation of this: The price level today is 2.877 times higher than it was in the 1982-84 period.

Analysis of Changes in the Consumer Price Index

Inflation by decade

Between January of 1948 and December of 1949 the average annual change in the CPI-U was 3.4%. The earlier portion of that period saw several months of very high levels of inflation due primarily to post-war economic changes. The highest measured rate during the period was 10.2% in January. The CPI actually declined in each month from May of 1949 until June of 1950, falling by as much as an annual average of 3.0% in August of 1949.

In the decade that followed (the 1950's) the average annual rate fell to 2.1% despite a period from January to December of 1951 that averaged 8.0% increases over the year. Between February of 1952 and the end of the decade inflation averaged 1.4% with a maximum rate of 3.7% in April of 1957 and a minimum of -0.9% in June of 1955. The 1960's saw an average inflation rate of 2.3% with a high of 5.9% in November and December of 1969. The lowest level was 0.7%

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between November of 1961 and January of 1962. The period from 1960 to December of 1965 saw an average rate of 1.3%. Between 1966 and December of 1969 that average climbed to 3.9%, an increase generally attributed to spending on the Vietnam war.

The United States experienced its highest sustained rates of inflation during the 1970s, a period when the CPI increased by an average of 7.1% over the year each month. The lowest rate was 2.9% in August of 1972 while the highest rate 13.3% in December of 1979. Between February of 1974 and April of 1975 inflation never fell below 10.0%. At the end of the decade the rate remained above 10% for 32 months between March of 1979 and April of 1981. Since the 1970s we have seen an overall decline in inflation each decade up to the 2020's.

While the early part of the 1980's was characterized by high inflation, by November of 1982 the rate fell below 5.0% where it stayed until April of 1989. Overall, the average rate of inflation throughout the 1980s was 5.6%. The highest rate was 14.6% in both March and April of 1980. The lowest rate was 1.2% in December of 1986.

Throughout the decade of the 1990s the rate averaged 3.0% with a high of 6.4% in October of 1990 and a low of 1.4% in February, March, April and September of 1998. The 2000's saw the average rate decline to 2.6% with a high of 5.5% in July of 2008. Within 6 months of that high, inflation fell to or below zero for the eight months from December of 2008 to October of 2009 during a recession that was, at the time, the deepest since the Great Depression.

The 2010's saw the lowest inflation rates since World War II. The highest rate over the decade was 3.8% in August and September of 2011. The lowest rate was -0.2% in January 2015. February and April 2015 (-0.1%) were the only other months below zero.

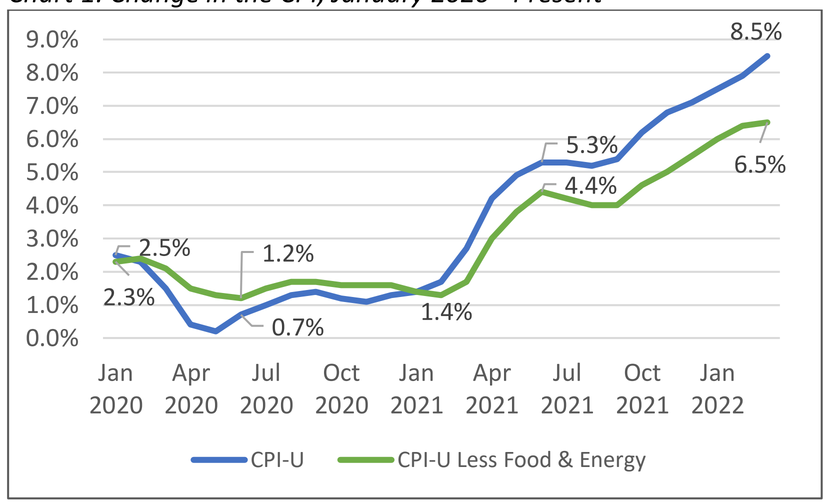
Table 1: CPI-U and Inflation by Decade (1982-84 base)

Decade	Starting CPI	Average Inflation	Highest Inflation	Lowest Inflation
1947-49	21.48	3.4%	10.2%	-3.0%
1950s	23.51	2.1%	9.6%	-2.1%
1960s	29.37	2.3%	5.9%	0.7%
1970s	37.9	7.1%	13.3%	2.9%
1980s	78.0	5.6%	14.6%	1.2%
1990s	127.5	3.0%	6.4%	1.4%
2000s	169.3	2.6%	5.5%	-2.9%
2010s	217.5	1.8%	3.8%	-0.2%
2020s	258.7	3.5%	8.6%	0.2%

Pandemic-Era Inflation

In the early months of 2020 the rate hovered around 2.0%. It fell below 2.0% from March 2020 to February 2021, after which it started a steady rise that continued through March 2022. The three months of 2022 have seen rates of 7.5%, 7.9% and 8.5% respectively, the first three month period with rates above 7.0% since 1982.

Chart 1: Change in the CPI, January 2020 - Present



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Recent Component Changes Within the CPI

The CPI aggregates price changes for a wide range of items into a single index. In a given period it's likely that some items in the basket will become more expensive while others become less. When items that constitute a large share of monthly spending in the basket of goods experience large price changes, those changes can significantly impact the price of the basket and therefore the value of the CPI. Food and Energy are both a large share of monthly spending. The prices of these two items are also highly volatile.

In March 2022 the CPI increased 8.5%, driven in part by large increases in the costs of food and energy. Food prices increased 8.8% including Meat, Fish, Poultry & Eggs (+13.7) and Cereals and Bakery Products (+9.4%). Of interest, while food purchased to be consumed at home increased 10.0%, food purchased for consumption away from home (at restaurants, for example) only increased 6.9%.

Table 2: Component Changes in CPI, March 2021 to March 2022

CPI-U	**8.5%**
Food	8.8%
Meat, Fish, Poultry and Eggs	*13.7%*
Cereals and Bakery Products	*9.4%*
Food for home	*10.0%*
Food away from home	*6.9%*
Energy	32.0%
Fuel Oil	70.1%
Gasoline	48.0%
Electricity	13.5%
Natural Gas	11.1%
CPI minus food and energy	**6.5%**

Energy prices were a larger contributor to the elevated March CPI. Overall, prices in energy increased 32.0% over the year. Fuel oil prices increased 70.1% while gasoline prices increased 48.0%. Electricity and piped natural gas prices increased by 13.5% and 11.1% respectively.

Removing these volatile components from the CPI, the index grew at a slightly more modest 6.5% over the year in March of 2022. A steep increase in the cost of automobiles (+12.5% for new vehicles and 35.3% for used cars and trucks) was offset somewhat by slower growth in the price of medical care services (+2.9%), rent of primary residence (+4.4%), motor vehicle maintenance and repair (+4.9%) and motor vehicle insurance (+4.2%).

Northeast Region CPI

The Bureau of Labor Statistics' Northeast Region includes the New England states, New York, New Jersey, Pennsylvania, Puerto Rico and the US Virgin Islands. The CPI for the region increased 7.3% over the year in March, the largest since December 1981 and slightly below the national rate of 8.5%. Less food and energy the rate was 5.0%. Driven in large part by higher gas prices, the energy index jumped 34.4% over the year. The food index increased 7.6%.

The New England division of the Northeast Region experienced an over-the-year increase of 7.4% while the Middle Atlantic division saw an increase of 7.2%.

Other Measures of Changes in Price Level

The Producer Price Index

In addition to the Consumer Price Index the Bureau of Labor Statistics also publishes the Producer Price Index (PPI). Similar to the CPI in method and design, the PPI measures the average change over time in the selling prices received by domestic producers for their output.

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The prices included in the PPI are from the first commercial transaction for many products and some services.

Because it is measuring prices earlier in the production and consumption process, the Producer Price Index is sometimes seen as a leading indicator of movement in the CPI. For example if the price of an input commodity increases, the price increase will be reflected first in prices received by producers. After production and transformation into consumer goods, it will show in prices paid by consumers.

The PPI for Final Demand for March 2022 showed an increase of 1.4% over the month and 11.2% over the year. This marks the largest increase since 12-month data were first calculated in November 2010. Less food and energy the over-the-year increase was 7.0%.

Personal Consumption Expenditures

Produced by the Bureau of Economic Analysis, the Personal Consumption Expenditures Price Index (PCE) looks at the changing prices of goods and services purchased by consumers in the United States. It is similar to the CPI but important differences exist. Noting two important differences:

First, the PCE attempts to account for consumer substitution of products – the tendency for consumers to buy less of a good as it becomes more expensive relative to others, substituting less expensive goods.

Second, the CPI measures changes in the out-of-pocket expenditures of urban consumers while the PCE index measures the change in goods and services consumed by all households and nonprofit institutions serving households. For example the PCE includes medical care services paid for by employers through employer-provided health insurance as well as medical care services paid for by governments through programs such as Medicare and Medicaid. During the first quarter of 2022 Personal Consumption Expenditures increased 7.0% relative to first quarter 2021. PCE on goods increased 11.8%, driven largely by Gasoline & Other Energy (+63.1% over the year.) Furnishings and Durable Household Equipment increased 18.2%; Clothing and Footwear 11.8%. PCE on services increased a more modest 4.6% driven by Utilities (+6.4%), Recreation Services (+5.9%) and Transportation Services (+5.5%).

Excluding food and energy the PCE increased 6.0% over the year.

Comparing the Three Indices

The three indices serve different roles in business and economic policy-making. While each uses different measurements and methods they tend to move in step with each other over time. Over the past 12 months the Producer Price Index has shown the highest levels of inflation, followed by the Consumer Price Index and Personal Consumption Expenditures. This is true for the measurements when excluding food and energy prices as well.

In each case, however, both food and energy prices are significant contributors to the elevated inflation levels. Energy expenses in particular are an important input into just about every good and many services purchased in the United States. Elevated energy prices therefore tend to drive up costs for a wide range of other goods and services. See table 3 for a comparison of the three indices over the past year.

Table 3: March 2022 Over-the-Year Price Changes by Index

Measure	Change in Index value	Change Minus Food & Energy
Consumer Price Index	8.5%	6.5%
Producer Price Index	11.2%	7.0%
Personal Consumption Expenditures	7.0%	6.0%

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