



At 8:30am on August 10, 2022 the U.S. Bureau of Labor Statistics (BLS) released its Consumer Price Index (CPI) Report for the month of July 2022.<sup>1</sup> President Biden wasted no time highlighting the reporting, stating later that morning, “our economy had 0% inflation in the month of July,” an observation that was repeated by several media outlets.<sup>2</sup> Looking at the same BLS report, others noted a current inflation rate of 8.5% and described President Biden’s assessment as a lie.<sup>3</sup> Senator Ted Cruz Tweeted: “Ridiculous BS from the White House. There’s 8.5% inflation...This is just cruel gaslighting from...Biden...”<sup>4</sup>

The CPI is a measure of aggregate prices for a basket of goods and services that a typical household purchases. The value of the CPI can be used to compute an inflation rate, which is a measure of the percentage change in the overall price level over time. From here we see that the inflation rate is a flow variable as opposed to a stock variable.

A stock variable measures the level or amount of something at a particular point in time. A flow variable is measured over a period of time. For example, if you have a goal of living a healthier lifestyle and want to monitor your progress, you might look at your weight and your caloric intake. Your weight is a stock variable (e.g., you currently weigh 181 pounds); your caloric intake is a flow variable (e.g., you consumed 3,600 calories of food yesterday). In many applications, the choices of unit of measure and timeframe are both arbitrary. You could measure your weight in pounds or kilograms; you could measure your caloric intake over the last day or the last week.

Returning to inflation, simply observing that the price of pork chops increased by 2.3% during the past month does not mean that we are experiencing 2.3% inflation. This is because, while the price of pork chops went up by 2.3%, the prices of some other goods increased by even more, the prices of some other goods increased by less, and the prices of some other goods decreased over the same time period. Over the past month the price of: eggs increased by 4.3%; a new car increased by 0.8%; and gasoline decreased by 7.7%.<sup>5</sup> The CPI is computed by weighting

of time. For example, if the value of the CPI increased from 210.036 to 258.115, then we can compute that there was a  $(258.115 - 210.036) \div 210.036 = 22.9\%$  increase in prices over the relevant time period.<sup>6</sup> Table 1 reports the value of the CPI in every month between January 2016 and July 2022.

Table 1: CPI, January 2016 through July 2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	236.916	237.111	238.132	239.261	240.229	241.018	240.628	240.849	241.428	241.729	241.353	241.432
2017	242.839	243.603	243.801	244.524	244.733	244.955	244.786	245.519	246.819	246.663	246.669	246.524
2018	247.867	248.991	249.554	250.546	251.588	251.989	252.006	252.146	252.439	252.885	252.038	251.233
2019	251.712	252.776	254.202	255.548	256.092	256.143	256.571	256.558	256.759	257.346	257.208	256.974
2020	257.971	258.678	258.115	256.389	256.394	257.797	259.101	259.918	260.28	260.388	260.229	260.474
2021	261.582	263.014	264.877	267.054	269.195	271.696	273.003	273.567	274.31	276.589	277.948	278.802
2022	281.148	283.716	287.504	289.109	292.296	296.311	296.276					

When computing an inflation rate, the most common approach is to look at the change in price level over the most recent year. This gives us an annual inflation rate and is the standard measure of price changes.<sup>7</sup> For example, we could compute that in January 2021, the overall price level was 261.582, and in January 2022, it was 281.148. This represents an increase of  $(281.148 - 261.582) \div 261.582 = 7.47\%$  in the price level over the most recent year.

from February 2016 through July 2022,