Core Economics: Concepts and Applications

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Chapter 7: Inflation

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Chapter 7

Inflation

In simple language, the inflation rate is the average of the percent changes in the prices in various goods and services in a given year or month over the previous period.

Across the world, the most commonly used measure of inflation is the Consumer Price Index (CPI). People are familiar with it since the news media report the inflation rate based on the CPI.

Governments began calculating the CPI as a tool that people could use to negotiate wage increases to compensate for price increases. The idea is simple: "Because prices went up by 5% last year, my wages should go up by at least 5% to compensate me for the higher cost of living."

And, it's not just wages that have to be adjusted. Many governments also adjust their pensions. For example, Australia has created a variant of the CPI called the Pensioner and Beneficiary Living Cost Index to compensate retirees and other government beneficiaries for price increases. India uses the CPI to calculate the dearness allowance to compensate government employees and retirees for price increases. Here, the word dearness is used in the British sense, with dearer meaning more expensive.

Let's call this the compensatory objective for measuring inflation.

Three versions of CPI in the US

To collect the price and quantity data for the fixed market basket, a government surveys a representative sample of households, and collects their detailed expenditure data. The government derives the weights from this data. Then, the government uses these weights to calculate the weighted average for several years into the future. After that, the government conducts a new survey, and changes the weights. In the US, the government conducts a new survey every two years, but some countries take longer.

The US has three versions of the Consumer Price Index: CPI-W, CPI-U, and CPI-E. The weights in each version represent the fixed market basket of the different sets of households covered by the index. In Figure 7.1, you can see the values of the three variants in the last few years. As you can see, the differences between the three versions are relatively small, quite unlike the difference between U-3 and U-6 for unemployment in Chapter 6.

Figure 7.1 US CPI-W, CPI-U and CPI-E

Comparison of CPI-W, CPI-U, and CPI-E 2015-2019

Data source: Federal Reserve Bank of St. Louis
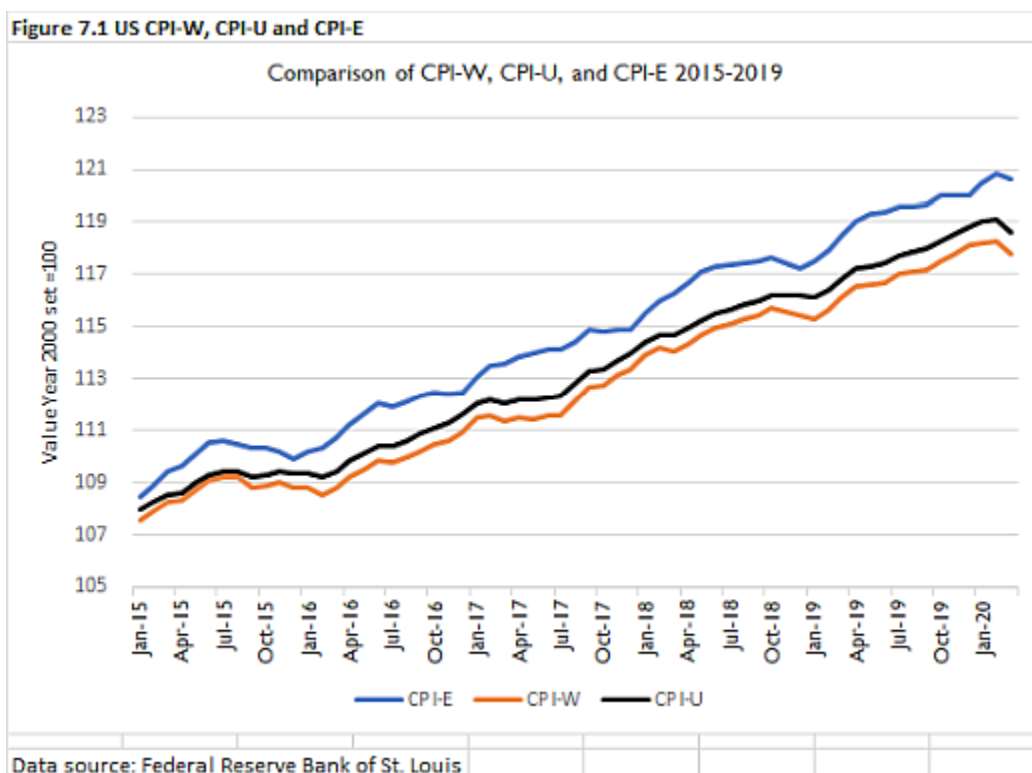
International comparison of inflation

In a real-world presentation of the CPI, there is a base year for which the CPI value is set equal to 100. In the US, this period is currently set as 1982-84. This makes it easier to compare the price level over time. For example, the US CPI value for September 1974 is 50.6, which indicates that prices in September 1974 were about half as high as in 1982-84. Or, prices doubled in about 10 years. And, the US CPI was about 199.7 in March 2006. So, it took about 22 years for prices to double again in the US.

However, it's easy to change the base year. For example, we can reset the base period for the US CPI, and make it September 1974, just to illustrate the point. With the CPI for 1974 set at 100, what would be the CPI value for March 2006? It would be 100*199.7/50.6 = 394.7. As expected, this shows that prices in March 2006 were about four times higher than in September 1974.

This change of the base period is useful in international comparisons. For example, I have set the CPI values for January 2000 equal to 100 for several countries. You can see the resulting CPI values in Figure 7.6.

Figure 7.6 CPI various countries

Consumer Price Index various countries

Data source: Federal Reserve Bank of St. Louis