

In class exercise: Constructing the Consumer Price Index (CPI)

EC 201

Spring 2022

In this exercise, we are going to construct the Consumer Price Index and Calculate consumer price inflation rate. The following table contains different categories and goods/services under each categories. Your job is to find out their prices and calculate the total cost in June'16 and June'17. Note: cost = quantity \times price.

Table 1: Categories and Items in the Market Basket

Categories and Items	Quantity	June'16 price	June'17 price	June'16 cost	June'17 cost
Food	1				
1 dozen large eggs	1				
1 pound 85% lean ground beef	1				
24 pack of 12-oz. Coke	1				
Housing	1				
Average rent—2 bedroom/2 bath	1				
Bed, dresser, and desk	1				
Large dog bed	1				
Apparel/clothing	1				
Chuck Taylor Converse All Stars	1				
Gap® denim jacket	1				
Transportation	1				
Regular gasoline	1				
New Ford Escape S	1				
Round trip ticket St. Louis to Orlando	1				
Medical Care	1				
Children's eye glasses—Lens Crafters	1				
Coppertone® Sport 7 oz. SPF 20	1				
Band-Aid® variety pack 30	1				
Recreation	1				
32-in. LG Smart TV	1				
Razor scooter					
Nike training soccer ball	1				
Education and Communication	1				
Crayola crayons 64-count box	1				
Fiskars 5-in. kids scissors	1				
AT&T Unlimited Extra plan	1				
Other goods and services	1				
Haircut—Great Clips	1				
One month basic cable	1				
Small-sized dog grooming	1				
Total					

Next, compute the price index for June 2017, assuming June 2016 CPI=100. This means, you can use the following formula.

Price index in June 2017 = $\frac{\text{Cost of the consumer basket in June 2017}}{\text{Cost of the same basket in June 2016}} \times 100$. We call June 2016 the “Base period”.

Let’s now compute inflation rate from June 2016 to June 2017 using this formula

Inflation rate = $\frac{\text{Price index in June 2017} - \text{Price index in June 2016}}{\text{Price index in June 2016}} \times 100$

Substitution Bias of CPI

Now imagine you can get Skechers shoes quite similar to Chuck Taylor Converse All Stars at half the price. You happily switch to Skechers. The Bureau of Labor Statistics (who compute CPI and inflation rate) don’t know that yet. The CPI basket that they use to compute CPI still shows that you continue to buy Chuck Taylor Converse All Stars and not Skechers that are way cheaper. Will this overstate or understate inflation rate? How to solve it?

Quality/New good Bias of CPI

Consider the round trip ticket from St. Louis to Orlando. The airline is now offering your favorite meal. This means that the quality of their service is now higher while the price is higher as well. If the BLS does not take this higher quality into account in their calculations of CPI, does this understate or overstate inflation? What do you suggest as the solution?