Problem Sets Macroeconomics Week 2

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Quick Check Multiple Choice

1. The consumer price index measures approximately the same economic phenomenon as:

   A. nominal GDP
   B. real GDP
   C. the GDP deflator
   D. the unemployment rate

2. The largest component in the basket of goods and services used to compute the CPI is:

   A. food and beverages
   B. housing
   C. medical care
   D. apparel

3. If a Pennsylvania gun manufacturer raises the price of rifles it sells to the U.S. Army, its price hikes will increase:

   A. both the CPI and the GDP deflator
   B. neither the CPI nor the GDP deflator
   C. the CPI but not the GDP deflator
   D. the GDP deflator but not the CPI

4. Because consumers can sometimes substitute cheaper goods for those that have risen in price:

   A. the CPI overstates inflation
   B. the CPI understates inflation
   C. the GDP deflator overstates inflation
   D. the GDP deflator understates inflation

5. If the consumer price index is 200 in 1980 and 300 today, then $600 in 1980 has the same purchasing power as:

   A. $400

   B. $500

   C. $700

   D. $900

6. You deposit $2,000 in a savings account, and a year later you have $2,100. Meanwhile, the CPI rises from 200 to 204. In this case, the nominal interest rate is - percent, and the real interest rate is - percent.

   A. 1, 5

   B. 3, 5

   C. 5, 1

   D. 5, 3

Problems and Applications

1. The residents of Vegopia spend all their income on cauliflower, broccoli, and carrots. In 2013, they spend a total of $200 for 100 heads of cauliflower, $75 for 50 bunches of broccoli, and $50 for 500 carrots. In 2014, they spend a total of $225 for 75 heads of cauliflower, $120 for 80 bunches of broccoli, and $100 for 500 carrots.

   a. Calculate the price of each vegetable in each year.

   b. Using 2013 as the base year, calculate the CPI for each year.

   c. What is the inflation rate in 2014?

2. Suppose that people consume only three goods, as shown in this table:

Year	Tennis Balls	Golf Balls	Bottles of Gatorade
2014 Price	$2	$4	$1
2014 Quantity	100	100	200
2015 Price	$2	$6	$2
2015 Quantity	100	100	200

Table 1: Prices and quantities for goods in 2014 and 2015.

   a. What is the percentage change in the price of each of the three goods?

   b. Using a method similar to the consumer price index, compute the percentage change in the overall price level.

   c. If you learn that a bottle of Gatorade increased in size from 2014 to 2015, should that affect your inflation calculation? If so, how?

   d. If you learn that Gatorade introduced new flavors in 2015, should that affect your inflation calculation? If so, how?

Year	Karaoke Machines (Price)	CDs (Price)
2014	10 ($40)	30 ($10)
2015	12 ($60)	50 ($12)

Table 2: Quantities and prices for karaoke machines and CDs.

3. A small nation produces only karaoke machines and CDs, in the following quantities:

   a. Using a method similar to the consumer price index, compute the percentage change in the overall price level (2014 as base year).

   b. Using a method similar to the GDP deflator, compute the percentage change in the overall price level.

   c. Is the inflation rate in 2015 the same using the two methods? Explain why or why not.

4. Which CPI problems are illustrated in the following cases?

   a. The invention of the cell phone.

   b. The introduction of airbags in cars.

   c. Increased computer purchases due to falling prices.

   d. More raisins in Raisin Bran packages.

   e. Greater use of fuel-efficient cars due to higher gas prices.

5. The New York Times cost $0.15 in 1970 and $2.00 in 2011. The average wage was $3.36/hour in 1970 and $23.09/hour in 2011.

   a. By what percentage did the price of a newspaper rise?

   b. By what percentage did the wage rise?

   c. In each year, how many minutes does a worker have to work to earn enough to buy a newspaper?

   d. Did workers' purchasing power in terms of newspapers rise or fall?

6. Suppose that a borrower and a lender agree on the nominal interest rate to be paid on a loan. Then inflation turns out to be higher than they both expected.

   a. Is the real interest rate on this loan higher or lower than expected?

   b. Does the lender gain or lose from this unexpectedly high inflaMon? Does the borrower gain or lose?

   c. Inflation during the 1970s was much higher than most people had expected when the decade began. How did this affect homeowners who obtained fixed-rate mortgages during the 1960s? How did it affect the banks who lent the money?