

**Chapter 7 Review Questions**  
**Price Indexes and Inflation**  
**Dr. McGahagan**

True 1. Inflation typically falls in recessions and increases in good times.

False 2. The GDP deflator is a price index which fixes quantities in the base year.  
Prices are fixed in the base year and quantities vary with the data.

True 3. The CPI typically shows a higher rate of inflation than the GDP deflator.  
The CPI ignores the substitution effect.

False 4. If the GDP deflator were 150 in 2010 and goes up to 160 in 2011, the inflation rate calculated in 2011 would be 10 percent.

There is a 10 point increase in the GDP deflator, but the inflation rate is the **percentage change**  
 $(160 - 150) / 150 = 10 / 150 = .067$  or 6.7 %

False 5. One problem with the GDP deflator is that it neglects the substitution effect.  
The CPI is the price index that neglects the substitution effect

False 6. The substitution effect is the tendency of people to buy relatively more of luxury goods when their income rises.

It is the tendency of people to protect themselves against inflation by purchasing more of goods which have become relatively cheaper (that may have risen in price, but less than other goods) and to avoid goods which have become relatively more expensive.

True 7. The core PCE deflator is the measure most closely watched by the Federal Reserve as an indicator of inflation.

The core PCE deflator is constructed on the same principles as the GDP deflator but covers only Personal Consumption Expenditures – prices are fixed in the base year, and quantities vary. The “core” part means that it strips out volatile prices such as energy and food. One alternative now getting attention is a “trimmed mean” PCE, which omits both the very high and very low price rises from the calculation of inflation.

False 8. The real interest rate is the nominal interest rate divided by a price index.  
The real interest rate is already a percentage, and to adjust from inflation one subtracts off the inflation rate.

False 9. Unexpected inflation will benefit banks and other lenders.  
It benefits borrowers, who will be able to pay back their loans in less valuable dollars.

False 10. Falling prices automatically benefit all sectors of an economy.  
Lower prices for what one buys is good for the purchaser – but also mean lower revenues for firms, and lower incomes for the factors of production (remember the Circular Flow!) Unexpectedly low inflation will also harm borrowers, who must now pay back their debts in dollars that are worth more than previously.

True 11. Sudden and unexpected deflation is more likely to be harmful to economic growth than sudden and unexpected inflation.

Inflation may mean some redistribution of income from lenders to borrowers, and some inefficiency in interpreting price signals, but moderate inflation does not seem to affect overall economic growth.

Deflation forces personal and corporate bankruptcies, as borrowers are no longer able to repay debts (farmers are unable to pay off their mortgages with lower crop prices, firms face sticky wages in the short run and falling prices for their products).

**False** 12. The United States has not seen deflation since the Great Depression.

Consider the CPI for

2008 215.3

2009 214.5 Inflation rate =  $(214.5 - 215.3) / 215.3 = 0.8 / 215.3 = .00372$  or 0.372 %

Less than ½ percent deflation, but still deflation.

**True** 13. Prices of goods and services which are labor-intensive tend to be sticky; prices of goods that are raw-materials intensive tend to be flexible.

See the interesting “inflation project” of the Atlanta Federal Reserve, as reported by Michael Bryan and Brent Meyer in their article “Are Some Prices More Forward Looking than Others? We Think So” (May, 2010), on the web at <http://www.clevelandfed.org/Research/commentary/2010/2010-2.cfm>

Motor fuel goes only 0.7 months between changes in price, fruit and vegetables 1.3 months, women's apparel 2.3 months, men's apparel 3.2 months – relatively flexible prices, which can clear a market quickly.

Sticky price items include motor vehicle repair (5.3 months), education services (11.1 months), medical services (14.0 months). The market may not adjust to equilibrium quickly, and this has consequences for the business cycle.

**True** 14. The CPI was 215 in 2008 and 214 in 2009. The rate of inflation was about half a percent between 2008 and 2009. (See the more exact calculation in question 12).

Given the following data, answer the following questions. Show all your work, clearly indicating the operations you are conducting.

Assume that 2011 is the base year. Also assume that these are the only two goods produced, and that both are produced domestically, so that the coverage of the CPI and the GDP deflator is the same.

	PRICES		QUANTITIES	
	Good X	Good Y	Good X	Good Y
2011	\$ 50	\$ 100	30	20
2012	\$ 40	\$ 110	20	30

**\$ 3500** 15. Nominal GDP in 2011 is ---

$$\text{Nominal GDP 2011} = \$ 50 * 30 + \$ 100 * 20 = \$ 1500 + \$ 2000 = \$ 3500$$

**\$ 3500** 16. Real GDP in 2011 is --- (in the base year, real and nominal GDP are the same)

**\$ 4100** 17. Nominal GDP in 2012 is ----

$$\$ 40 * 20 + \$ 110 * 30 = \$ 800 + \$ 3300 = \$ 4100$$

**\$ 4000** 18. Real GDP in 2012 is ---

Use 2011 prices and 2010 quantities:

$$\$ 50 * 20 + \$ 100 * 30 = \$ 1000 + \$ 3000 = \$ 4000$$

**14.29 %** 20. The real GDP growth rate between 2011 and 2012 is ----

$$(4000 - 3500) / 3500 = .1429 \text{ or } 14.29 \text{ percent.}$$

\_\_\_2.5 %\_\_21. The rate of inflation between 2011 and 2012, as calculated by the GDP deflator, is –

GDP deflator for 2011 = 100, since it is the base year

GDP deflator for 2012: since  $\text{Real GDP} = \text{Nominal GDP} / \text{Deflator}$ , the  $\text{Deflator} = \text{Nominal GDP} / \text{Real GDP}$

Hence the GDP deflator for 2012 is  $\$ 4100 / \$ 4000 = 1.025$  or 102.5,

and the inflation rate is the percentage change in deflators:

$$(102.5 - 100) / 100 = .025 \text{ or } 2.5 \text{ percent.}$$

\_\_\_\_\_22. The rate of inflation between 2011 and 2012, as calculated by the CPI, would be ---

We must calculate the CPIs in the two years first.

Here is the table again for convenience:

	PRICES		QUANTITIES	
	Good X	Good Y	Good X	Good Y
2011	\$ 50	\$ 100	30	20
2012	\$ 40	\$ 110	20	30

The base year CPI will automatically be 100.

The price of the base year basket in the base year is \$ 3500.

The price of the base year basket in 2012 would be:

$$\$ 40 * 30 + \$ 110 * 20 = \$ 1200 + \$ 2200 = \$ 3200$$

The CPI is the price of the base year basket in any year, divided by the price of the base year basket in the base year (and multiplied by 100):

$$\$ 3200 / \$ 3500 = 0.9143 * 100 = 91.43$$

The inflation rate reported by the CPI will be  $(91.43 - 100) / 100 = - .0857$  or -8.57 percent.

We have negative inflation or deflation.

\_\_\_**False**\_\_23. It is normally the case that the GDP deflator shows a higher rate of inflation than the CPI.

It is usually the CPI which shows a higher rate of inflation than the CPI, because it neglects the substitution effect. In the example above, the consumers did not show the substitution effect – good X becomes cheaper in 2012, but consumers consume less of it; good Y is more expensive, yet consumers buy more of it.

Note: this is not a violation of the law of demand, because consumers' real income increased between the two years, as the real GDP calculation showed. If goods X and Y were both inferior goods, this would be possible as a matter of mathematics, however unlikely it is as a matter of economics (it can indeed be shown that it is economically impossible for all goods to be inferior). Even if only the more important one were inferior, it would still be possible to get this unusual result that the CPI inflation is less than the GDP inflation. If you changed the amount of Y consumed in 2012 to 19, good Y would not be inferior, and the GDP deflator would be 0.997, showing only a very small deflation rate, while the CPI inflation would be unchanged, and still show sharply dropping prices.