GDP and Inflation: Key

The following data show all goods and services purchased in Pennsyltucky in 2011 and 2012. Pennsyltucky is completely isolated and unapproachable, and thus does not engage in any international trade:

Item	Q_{11}	P_{11}	Q_{12}	P_{12}
Sock Puppets	100	\$150	120	\$200
New Housing	10	\$1000	5	\$1000
Old Housing	10	\$100	15	\$300
Tractors	20	\$300	25	\$280
Dr. Pepper	80	\$100	40	\$50

1. Old housing is excluded from GDP. There are two consumption goods, Dr. Pepper and Sock Puppets. In 2011, their market values were \$15,000 and \$8000 so total consumption equaled \$23,000. For 2012, these figure were \$24,000 and \$2,000 for a total of \$26,000.

There are two investment goods, New Housing and Tractors. In 2011, their market values were \$10,000 and \$6000 so total investment equaled \$16,000. For 2012, these figure were \$5000 and \$7,000 for a total of \$12,000.

Because there are no government expenditures, imports, or exports, total GDP is just $C+I$. It was thus \$39,000 in 2011 and \$38,000 in 2012.

2. For the base year of 2011, real and nominal GDP are the same and equal \$39,000. To calculate real GDP for 2011, we multiply 2012 quantities by 2011 prices. It thus equals \$(150*120+1000*5+300*25+100*40)=\$34,500. GDP growth thus equals:

$$\frac{34.5-39}{39}=-11\% \tag{1}$$

3. For the base year of 2012, real and nominal GDP are the same and equal \$38,000. To calculate real GDP for 2012, we multiply 2011 quantities by 2012 prices. It thus equals \$(100*200+10*1000+20*280+80*50)=\$39,600. GDP growth thus equals:

$$\frac{38-39.6}{39.6}=-4.0\% \tag{2}$$

4. I will devise a consumer price index capturing what the typical Pennsyltuckian consumes in a single month. This is obviously a sock puppet, two tractors, and 3 units of Dr. Pepper.

For 2011, this basket of goods costs $1050. In 2012, this equals $910.

Inflation thus equals:

$$\frac{910 - 1050}{1050} = -13.3\% \tag{3}$$

For my basket of goods, the economy suffers from significant deflation.

5. False. Imports are included in consumption, government spending, and government spending. If a household buys imported beer, that is consumption. If the government does it, that is government expenditures. Subtracting it from GDP then offsets these effects so that imports do not impact GDP.

Negative GDP suggests that a geographic region produces negative output in a given period. This does not make economic sense.

6. False. As we saw in class, if inflation is expected and uniform, then it causes no problems. Likewise more inflation includes the case where we go from deflation to stable prices. Remember that deflation is as bad, or worse, than inflation.

7. Deflation refers to a falling price level (the inflation rate is negative). Disinflation refers to a reduction in the inflation rate. The two can happen at the same time if, for example, the inflation rate falls from 3% to -3%.

8. This is a subjective question and my main goal is to reinforce the notion that GDP (a measure of output) does not equal welfare. Consider one example. The Congressional Budget Office in January 2021 estimated that a $15/hour Federal minimum wage would reduce U.S. employment by 0.9% but would increase the income of 27 million low income workers. Accepting these estimates, *arguendo*, it is reasonable to argue that the benefits of this policy outweigh the costs so that social welfare is improved.

9. The calculations from #2-3 assume that sock puppets are identical in 2011 and 2012. Any price increase is considered inflation. This may not b accurate, however, if the quality of sock puppets has improved, households may instead be paying more because a 2012 model is superior to a 2011 model. The CPI may thus overstate inflation.

10. In addition to the quality issue discussed in #9, the CPI does not easily allow for households to substitute. If one item in the basket of goods, the household does not have to pay the higher price if there is a good substitute available at a lower price.