

Problem Set #1 Answers
Sept. 18, 1996
14.02

1.) Both real and nominal GDP have steadily increased (for the most part) since the 1960s although the latter series has exhibited steeper movements. The increases in real GDP are due to increases in final goods production while the increases in nominal GDP can be attributed to increases in both final goods production and prices. Note that, a lack of movement in real GDP coupled with an increase in nominal GDP signals constant final goods production and higher prices. The real GDP curve is flatter than the nominal curve because prices are kept constant (nominal GDP incorporates price movements). The base year is 1987. The curves would cross at 1958 – the base year – since computations of real GDP for 1958 would employ the prices of goods in 1958. Nominal GDP would look no different.

2a.) The CPI may exhibit different changes than the deflator inflation because the CPI represents a price index of a pre-determined basket of goods consumed by Americans. This includes both foreign- and domestic-produced goods. Meanwhile, the GDP deflator incorporates the prices of goods produced only in the U.S. Thus, an increase in Japanese car prices would most likely cause CPI inflation to surpass GDP deflator inflation.

b.) Between 1978 and 1979, the U.S. was experiencing a supply shock resulting in a dramatic increase in the price of imported oil. The price of gasoline skyrocketed. Consequently, CPI inflation exceeded GDP inflation since the price of a major component of the CPI basket soared.

	Year	Hints	1997	1998
	Nominal GDP	The sum of current prices*quantities	1800	2825
3a.)	Real GDP in '97 dollars	The sum of 1997 prices*quantities	1800	1850
	Real GDP in '98 dollars	The sum of 1998 prices*quantities	3050	2825
	GDP deflator in '97 dollars	Nominal GDP/real GDP ('97)	1	1.53
	GDP deflator in '98 dollars	Nominal GDP/real GDP ('98)	.59	1
3b)	$\frac{GDPdeflator_{1998}-GDPdeflator_{1997}}{GDPdeflator_{1997}} = \frac{1.53-1}{1} = .53 \text{ or } 53\% \text{ inflation (all using '97 as base year)}$			
3c)	$\frac{GDPdeflator_{1998}-GDPdeflator_{1997}}{GDPdeflator_{1997}} = \frac{1-.59}{.59} = .69 \text{ or } 69\% \text{ inflation (all using '98 as base year)}$			
3d)	b) and c) are a different mix of goods using different base years.			

3e) Inflation reflects an increase in the price level and, therefore, the cost of living. If inflation; wage increases, the standard of living (or real wage) declines. Inflation thereby impacts income distribution, creating distortions in investment and consumption decisions. High inflation introduces much more potential distortion to the economy. It may be the case that hyperinflation results in the domestic currency losing its value rapidly when the price level rises by huge increments.

4a) There is a graph in the text illustrating a graph similar to this.

4b) The graph does seem to correspond to Okun's Law in that high growth rates coincide with decreases in the unemployment rate. Low growth rates, similarly, coincide with increases in the unemployment rate.

4c) The labor force participation rate has climbed mainly as a result of more women joining the workforce over the past 30 years.

5a) Yes, this should count as a service. *Unfortunately*, it is rarely reported since it is an informal, or under-the-table type of income (like babysitting).

5b) No, the microwave is a used product. It does not represent a new good in the economy.

5c) No, this transaction will not be counted because paper is an intermediate input. *The* book is the final input and will be counted.

5d) Yes, MIT is providing a service.

6) If imports exceed exports, there will be a trade deficit. *Hence*, $C+I+G$ may equal 105% of GDP while $C+I+G+X-M= 100%$ of GDP.

7) No. First, part of the decline in GDP (if we are discussing nominal GDP) could be due to a massive decline in the price level. This, however, is not the case since Georgia, like other Former Soviet Union nations, is probably experiencing substantial inflation. Second, the method of accounting may be subject to extreme measurement error due to the change in regimes. Third, there may be a large black-market economy emerging, the practices, incomes and products of which cannot be and are not counted in GDP.

As for the \$100,000 to improve the official number – this is your opinion. Potential avenues: improve accounting procedures, build a factory....