

Problem Set #1
Macroeconomics, 14.02
Due Date: 9/18/96

1.) In Chapter 2 of the text, you will find an illustration that traces real and nominal GDP for the U.S. since 1960. Interpret this graph, paying particular attention to the relationship between real and nominal GDP. Why are the slopes of these two curves different? What was the base year used in computing real GDP? If the base year had been 1958, where would the two curves cross? Will the

nominal GDP curve look any different?

2.a.) Explain why the CPI (consumer price index) may exhibit larger or smaller changes over a given year than the GDP deflator. What do you expect would happen to the CPI-GDP deflator relationship if Japanese automobile manufacturers were to raise the price of all cars exported to the U.S. by 5%? Assume that the demand for Japanese cars does not decline in response to the price increase.

b.) In 1979, CPI inflation was substantially higher than GDP deflator inflation, standing at roughly 11.3% and 8.6%, respectively. Provide some intuition as to why this was the case.

3.) Consider an small economy consisting of 3 goods: scones, tea and beef. The economy has no exports or imports. In 1997, the economy produced 300 scones, 200 pounds of tea and 50 pounds of beef. The unit prices (price per scone or pound) are 1, 5 and 10 dollars, respectively. During the next year, a terrible disease kills half the cows in the nation, allowing farmers to supply only half the quantity of beef they did in the previous year. Thus, in 1998, the economy produced 350 scones, 250 pounds of tea and 25 pounds of beef at 2, 6 and 25 dollars, respectively.

a.) Fill in the following table based on the information above. Note: you may round your answers, if necessary.

Year	1997	1998
Nominal GDP		
Real GDP (in '97 dollars)		
Real GDP (in '98 dollars)		
GDP deflator (in '97 dollars)		
GDP deflator (in '98 dollars)		

b.) What is the rate of inflation between 1997 and 1998 using 1997 as a base year?

c.) What is the rate of inflation between 1997 and 1998 using 1998 as a base year?

- d.) Why may your responses to b.) and c.) differ?
- e.) Briefly, why do we study inflation? What are the potential effects of high inflation rates?

4.a.) Using the Economic Report of the President, 1996, graph the change in U.S. unemployment rate and the rate of real GDP growth from 1986-1994. Use the same graph for both series.

b.) Does there appear to be some relationship between unemployment and GDP growth? In your opinion, how well does this correspond to Okun's Law?

c.) Why may the total labor force participation rate in the U.S. have risen over the past 20 years?

5.) GDP calculations. Explain why each of the following would or would not be counted in GDP.

a.) You pay \$10 to your neighbor for tutoring you in Economics 101.

b.) You buy a 25-year old IBM computer from the local antique store.

c.) A publishing company, in printing its Macroeconomics textbooks, buys 2,000 reams of paper from Xerox.

d.) You pay M.I.T. \$1 million for your tuition, room and board.

6.) Assume that, in a given year, U.S. spending on personal consumption, investment and government spending was 105 percent of GDP. How is that possible? (Inventories are zero.)

7.) Official GDP in the new Republic of Georgia (formerly part of the Soviet Union) in 1995 was equal to 17% of its 1989 value. Do you believe the official numbers? Why? If you were given \$100,000 to go to Georgia and improve the official number, how would you go about doing so?