

Homework 1
Economics 105 - Chapters 2 & 3
Due in class Friday 10/10/03

- 1) For each of the transactions listed below, state whether or not it would affect U.S. GDP, and state which of the following national income accounting categories it would enter: consumption, investment, government purchases, net exports.
- a) Boeing (a U.S. company) sells an airplane to American Airlines
 - b) Boeing sells an airplane. to the U.S. Air Force.
 - c) Boeing sells an airplane to India Air (a foreign company).
 - d) U.S. Steel Inc. sells steel to Boeing to produce airplanes.
 - e) Airbus Europe sells an airplane to American Airlines.
 - f) Boeing sells an airplane to Donald Trump (a U.S. citizen) for his personal use.
 - g) Boeing builds an airplane to be sold next year.
-

- 2) Consider an economy that produces and consumes pizza (nondurable good), jeans (durable good) and buzz haircuts (service). Use the data below:

	<u>2002</u>	<u>2003</u>
<u>pizza:</u>		
price	\$5	\$7
quantity	1000	1500
<u>jeans</u>		
price	\$30	\$50
quantity	30	20
<u>buzz haircuts</u>		
price	\$10	\$30
quantity	40	0

Using 2002 as the base year, compute the following statistics for 2003:

- a) nominal GDP
- b) real GDP
- c) GDP deflator
- d) CPI

Why do the CPI and GDP deflator give different characterizations of how much prices have risen from 2002 to 2003? Discuss which you would recommend as the more accurate reflection of the cost of living in this particular case, and explain your reasoning. (Arguments exist for both choices.)

-
- 3) Consider the following production function: $Y = 20 K^{0.6} L^{0.4}$, where Y represents output, K represent capital, and L represents labor.
- Compute expressions for the marginal products of labor and of capital
 - Do workers or capitalists (owners of capital) end up getting paid the larger share of total output? What fraction of total output gets paid to workers?
 - Suppose that an increase in immigration into the U.S. increases the U.S. labor force. Discuss the effect on the real wage and the real rental price of capital. Would workers currently in the U.S. be happy about the immigration? How about the owners of U.S. factories?
-

- 4) Congress is debating whether to implement a tax cut. Suppose you are a policy analyst working for the Congressional Budget Office, and it is your job to analyze the macroeconomic effects of a permanent tax cut. Suppose you have worked out the following very simplified model to characterize basic features of the U.S. economy:

$$Y = 10000$$

$$G = 2500$$

$$T = 1500$$

$$I = 2000 - 4000r \quad \text{Investment function}$$

$$C = 500 + .8(Y-T) \quad \text{Consumption function}$$

- First find the equilibrium levels of the interest rate, investment and consumption for the economy described for the equations above. (Use $Y = C + I + G$, where we assume a closed economy.)
 - Discuss the effects on the economy of lowering the level of T by 10%. You should compute the new equilibrium values of the interest rate, consumption and investment. In particular, by how much would investment be crowded out by the tax cut?
 - We often think that people are discouraged from buying consumption goods like cars or appliances when interest rates are high. The model above would be more realistic if it took this “interest rate channel” into consideration. Use your economic intuition to predict how this interest rate channel would alter the effects of the tax cut. In particular, would the tax cut crowd out investment more or less than you found in part (b) above? Explain your economic reasoning.
-