

First challenge
Eco 212, Fall 2006

The Challenge is closed book. Good luck! The following formulas may be of use.

$$\text{Value added} = \text{Revenues} - \text{cost of raw materials} =$$

$$\text{Income} = \text{wages} + \text{profits} = \text{expenditures} = C + I + G + X - M$$

$$\text{CPI} = \frac{p_{1,t} \cdot q_{1,b} + \dots + p_{n,t} \cdot q_{n,b}}{p_{1,b} \cdot q_{1,b} + \dots + p_{n,b} \cdot q_{n,b}} \cdot 100, \quad \text{GDP Deflator} = \frac{p_{1,t} \cdot q_{1,t} + \dots + p_{n,t} \cdot q_{n,t}}{p_{1,b} \cdot q_{1,t} + \dots + p_{n,b} \cdot q_{n,t}} \cdot 100$$

$$\text{NGDP} = p_{1,t} \cdot q_{1,t} + \dots + p_{n,t} \cdot q_{n,t}, \quad \text{GDP} = p_{1,b} \cdot q_{1,t} + \dots + p_{n,b} \cdot q_{n,t}$$

$$\text{GDP} = \frac{\text{NGDP}}{\frac{\text{GDP Deflator}}{100}}, \quad \text{unemployment rate} = \frac{\text{unemployed}}{\text{labor force}}$$

$$\text{participation rate} = \frac{\text{labor force}}{\text{working age pop.}}, \quad \text{Productivity} = \frac{\text{GDP}}{N}$$

$$S = (Y - C - T) + (T - G) = I + X - M, \quad \text{real rate} = \text{nominal rate} - \text{inflation rate}$$

The questions on the next page are over the material since the last homework.

Short answer questions (1-2 sentences!)

Question 1 (5 points).

Explain the difference between real and nominal interest rates. Is the interest rate on student loans a real or nominal rate?

Question 2 (10 points).

Suppose a jeweler buys 5 ounces of gold at \$200 dollars per ounce and a two diamonds for \$2000 each from a mining company (assume the mining company has no costs). The jeweler then makes two identical diamond rings and sells the rings to consumers for Valentines Day for \$3000 each. The jeweler pays 5 employees \$100 each for their work. Compute the addition to the GDP of the diamond rings using the value added approach and the income approach.

Question 3 (10 points).

Classify each of the following as either counted in the GDP or not counted in the GDP. Give a one sentence explanation for each.

- a. Raw materials.
- b. Sales tax.
- c. Social security payments.
- d. Sale of a used car.
- e. Purchase of new houses.

Question 4 (5 points).

Give one reason why the CPI overstates inflation.

Question 5 (15 points).

Categorize Dave and his friends as employed, unemployed, not participating, or young/institutional (give a one line or less explanation).

- a. Pete is a student who is also a bartender.
- b. Rick is a programmer who is looking for a job after her internet company went out of business.
- c. Dave is hired as a professional ultimate frisbee player on February 1, 2005. The season starts (ie he gets paid) May 1, 2005.
- d. Christian is not working because he is in jail.

- e. Jonathan could not find a full time job, so he is currently working part time.
- f. Adrian is not working because McDonalds only pays \$5.15 per hour, which Adrian calls “chump change.”
- g. Assume that the above 6 persons constitute the entire population. Calculate the participation rate and the unemployment rate.

Question 6 (10 points).

Give two possible reasons why the natural rate of unemployment is falling in the US and is higher in Spain.

Longer Questions

Question 7 (20 points).

Graph the market for loans. Show the effect of a decrease in government spending, holding income, taxes, and consumption constant. What happens to interest rates, national savings, public savings, and private savings?

Question 8 (25 points).

In the US, real minimum wages have fallen over time. Graph the labor market where a minimum wage creates a wage floor above the market wage. Carefully label on the graph the employed, unemployed and not participating. Show on the graph the effect of a rise in the price level (inflation). What happens to the real minimum wage and unemployment?