Homework I

due Friday, September 1st in class

1. **Prices (2 points)** What is a market-clearing model? When is the assumption of market clearing appropriate? When is it not? Give some specific examples.

2. **GDP I (3 points)** Assume that bananas cost $0.50 in 2002 and $1 in 2007, whereas pears cost $1 in 2002 and $1.50 in 2007. Suppose that 4 bananas were produced in 2002 and 5 in 2007, whereas 3 pears were produced in 2002 and 4 in 2007. Calculate the nominal GDP in 2002 and 2007, the real GDP (in 2002 prices) in 2007, the GDP deflators in 2002 and 2007 using 2002 prices. Finally, using the GDP deflators that you just calculated, find the implicit inflation between 2002 and 2007.

3. **GDP II (4 points)** Find data on GDP and its components, and compute the percentage of GDP for the following components for 1930, 1950, 1980, and 2015.

   i. Personal consumption expenditures
   ii. Gross private domestic investment
   iii. Residential fixed investment
   iv. Government purchases
   v. Net exports
   vi. National defense purchases
   vii. Imports

Do you see any stable relationship in the data? Do you see any trends?

A good source of data is the Bureau of Economic Analysis website (www.bea.gov). Once you are there, go to National, Gross Domestic Product, GDP and the National Income and Product Account (NIPA) Historical Tables, Then click on Begin using the data and then select Table 1.1.5. Gross Domestic Product (A) (Q). There you can select which years you want displayed (click Modify) (1929-2015) and frequency (annual).

4. **GDP III (3 points)** Go to the CIA Factbook (search for it on the Web). Get data for GDP per capita (PPP) for the US and India. What might be causing such a large disparity between the GDP per capita figures for the United States and India? In answering your question, think about the way the GDP figures are calculated. Also, consider how GDP may be a misleading measure of overall economic activity in a country.
5. **Components of GDP (3 points)** Explain which expenditure category of GDP changes and the direction of the change that results for each transaction described.

   a. A domestic business purchases a domestically produced computer to use in a business office.
   
   b. A domestic business produces a computer that is sold to a foreign company.
   
   c. The federal government purchases a domestically produced computer to use in a court house.
   
   d. A domestic household purchases a domestically produced computer to use in a home.
   
   e. A domestic household purchases a computer produced in a foreign country to use in a home.

6. **GDP IV (3 points)** Suppose a woman marries her butler. After they are married, her husband continues to wait on her as before, and she continues to support him as before (but as a husband rather than as an employee). How does the marriage affect GDP? How do you think it should affect GDP?

7. **GDP V (2 points)** Explain why output equals spending equals income for the economy as a whole.