Supplemental Problem Set 3
Complete before June 12 (but do not turn in)

Prepare answers to the following for Wednesday class. Supplemental problem sets resemble exam questions. Answers will be posted on NYU Classes on June 12 after class.

A. Questions from Chapter 3:

1. Chapter 3 #9

2. Chapter 3 #10

3. Chapter 3 #8

4. Chapter 3 #11

5. Chapter 3 #13

B. Questions from Chapter 5

6. Chapter 5 Problem #1 (use the quantity equation, $MV = PY$, the growth trick and the fact that the real interest rate = $r = i - \pi$)

7. Chapter 5 Problem #2.

8. Chapter 5 Problem #3.

9. Suppose you are the head of the central bank with a mandate to maintain the price level at its current value (this is called price-level targeting). Explain what you would do to the money supply in response to each of the following events?

   a. Real GDP increases by 4% due to an expansion during the year.
   b. Real GDP falls by 1% due to a recession during the year.
   c. Real GDP grows by 3% a year, every year.
   d. The velocity of money increases by 2% during the year.
   e. The velocity of money falls by 1% during the year.

C. The government budget constraint and Seigniorage.

10. At time t, the real government budget constraint is given by,

$$g_t - t_t + r_{t-1}b_{t-1} = \Delta b_t^G$$

where
g_t = real government spending at time t.
t_t = real net tax receipts at time t.
r_{t-1} = the real interest rate on period t -1 bonds.
b_{t-1} = the real bonds outstanding from period t - 1.
Δb_G^t = the change in government bonds in period t.
$g_t - t_t$ is the primary government budget deficit at time t.

The left hand side of the above equation is the total government budget deficit at time t. Note that $\Delta b_G^t = \Delta b_t^{Private} + \Delta b_t^{CB}$. This says that if the government runs a budget deficit in period t, it must issue more government bonds, Δb_t^G , and these must be sold either to the private sector, $\Delta b_t^{Private}$, or the central bank (CB), Δb_t^{CB} .

a. If $\Delta b_t^{Private} = 0$, describe in words how seigniorage can finances a government budget deficit at time t.

b. If $\Delta b_t^{Private} = 0$, describe five ways the government can eliminate the need to use seigniorage to pay the government?s bills (Hint: use the equation at the top and note that there are two ways via changes in net taxes, t_t).

D. Problems and Applications from Chapter 7 Unemployment in Mankiw

11. Chapter 7 Problem #4.

E. Additional Problems Unemployment

12. A country has a total population of 100 million, an adult population of 80 million, a labor force participation rate of 60%, a monthly separation rate of 3% and a monthly finding rate of 30%. Calculate the number of people employed in this country.