Problem Set 3 (revised)
Due in lecture on Wednesday, April 6.

1. **Balance of payments identities.** Recalling the balance of payments identity, \( CA + KA + ORT = 0 \), answer the following questions.

   1.1 If \( CA > 0 \) and the central bank is neither accumulating nor decumulating foreign exchange reserves, what must be true about private capital inflows?
   
   1.2 If a country maintains a pegged exchange rate and runs a balance of payments surplus, then what must be true about ORT? Explain what this means in words.
   
   1.3 From the Chinese perspective, if the Chinese central bank is purchasing more U.S. securities (T-bills, corporate bonds and stocks) than the U.S. central bank is purchasing of Chinese securities, then what is the value of \( KA \) (Ignore direct investment for purposes of this question)? What is the value of ORT?

   Go to [http://www.bea.gov/bea/newsrelarchive/2005/trans404.xls](http://www.bea.gov/bea/newsrelarchive/2005/trans404.xls) and download the table. (Note that the private portion of the “Financial Account” (portfolio flows, direct investment, bank and other investment liabilities) is equivalent to \( KA \).)

   1.4 Calculate \( KA \) for 2004, using the data in Economic Indicators, “U.S. International Transactions”.

   1.5 Calculate ORT for 2004.

   You may find of use the following diagram at: [http://www.ssc.wisc.edu/~mchinn/p260_2004_erp.pdf](http://www.ssc.wisc.edu/~mchinn/p260_2004_erp.pdf)

2. **The foreign exchange market.** Using a supply and demand diagram, and defining the US as the home country and the Euro Area as the foreign, show what happens in the following situations (assuming a flexible exchange rate regime).

   2.1 American demand for Euro Area passenger aircraft increases.

   2.2 Euro Area demand for American stock falls.

   2.3 Remittances from East Asian individuals in the US back to East Asia increases.

   Using the Table reproduced from the *Economist* (March 10th edition), answer the following questions.
2.4 Has the US dollar (USD) appreciated or depreciated against the euro (EUR) over the past year? By what amount has the USD appreciated/depreciated (in percentage terms)?

2.5 How many US dollars does it take to buy a single Australian dollar (AUD) now? How many did it take a year ago? Has the US dollar appreciated or depreciated?

2.6 What is the exchange rate of Swiss francs (SFR) for Australian dollars (AUD) (i.e., how many Swiss francs does it take to purchase a single Australian dollar)?

3. Elasticities approach.

3.1 Suppose that each one percent depreciation in the US dollar induces a 0.75 percent increase in exports and a 0.25 percent decrease in imports. Starting from a position where exports equals imports, what will be the impact on the trade balance?

3.2 Suppose the US experiences the exchange rate depreciation while running a large trade deficit. What will happen to the trade balance?

3.3 Suppose that instead of the elasticities being constant, they are smaller in the short run, and larger in the long run. What is the time path of the trade balance over time (starting from initial balance)?
4. National savings identity

\[ C + S + TA = Y \]
\[ C + I + G + EX - IM = Y \]
Treat \( Y \) as being GDP.

4.1 Defining \( TB = EX - IM \), solve for the \( TB \) as a function of the net national savings (taxes minus government spending plus private savings), and private investment.

4.2 Optional. Obtain the figures for 2003 for net domestic investment, net savings and government budget surplus, from Tables 5.1 and 3.1, respectively, of the National Income and Product Accounts of the Bureau of Economic Analysis. The website for the relevant section of the BEA website is: [http://www.bea.gov/bea/dn/nipaweb/SelectTable.asp?Selected=Y](http://www.bea.gov/bea/dn/nipaweb/SelectTable.asp?Selected=Y). Hint: You have to include the “statistical discrepancy” in Table 5.1. This figure from the Economic Report of the President, 2005 may be helpful.

5. Equilibrium income and multipliers. Consider the following model of the economy (where there are no taxes):

\[ Y = AD = C + I + G + EX - IM \]
\[ Y = C + rY + \bar{I} + \bar{G}O + EXP - (IMP + mY) \]

5.1 Solve \( Y \), setting \( \bar{A} = CO + \bar{IN} + \bar{GO} \).
5.2 Calculate the change in income for a given change in (autonomous) imports. Show your work!

5.3 Calculate the change in income for a given change in government spending. Show your work!

5.4 Calculate the change in the trade balance for a given change in autonomous imports. Hint: $TB = EX - IM$, so $\Delta TB = \Delta EXP - \Delta IMP - m\Delta Y$. Show your work!

5.5 In words, explain why the change in the trade balance is not equal to the change in autonomous imports.