Problem set #1
International Trade 2013
Due October 15th at the beginning of the class

The submission of the answer of the problem set is also counted as the attendance of the class. Thus, you can submit only your own answer of the problem set, not other students'. After your submission of the answer, we discuss the answer of the PS. So, please make a photocopy of your answer. Please submit the original and keep the photocopy for your study.

1.First read the reading for open economy on the class website. Then, answer the following question. Let r be the domestic interest rate and r^* be the interest at New York Under free mobility of capital, it becomes $r = r^*$. Explain why in plain English so that even your grand mother can understand it.

2. We discuss the macroeconomic model of trade account in an open economy. The model can be described as follows:

$$\begin{aligned} Y &= F(K, L) \\ Y &= CON(Dis) + I(r) + G + NX(\varepsilon) \\ I &= I(r) \\ Dis &= Y - T \\ K &= \overline{K} \\ L &= \overline{L} \\ G &= \overline{G} \\ T &= \overline{T} \\ P &= \overline{P} \\ P^* &= \overline{P}^* \\ r &= r^* \end{aligned}$$

Where Y is GDP and F(K,L) is a production function. It shows that GDP is a function of K and L where K is the amount of capital and L is the amount of labor. CON is the consumption function which shows that it is a function of the disposable income. The disposable income is defined as income minus tax, which is Y-T. I is investment which is a function of domestic interest rate. G is the government expenditure, NX is the net export. We assume that it is a function of the real exchange rate ε where $\varepsilon = \frac{eP}{P*}$ and e is the nominal exchange rate, the value of yen in terms of dollar. P is the price level of domestic goods and P^* is the price level of foreign goods. We assume that K,L, G, T, P and P* are pre-determined at K bar, L bar, G bar, T bar, P var, P* var.

(a) Explain why GDP is equal to the sum of the consumption, investment, the government expenditure and the net export in plain English.

(b) Explain why the investment is a negative function of interest rate in plain English.

(c) Explain why the Net export is the negative function of real exchange rate in plain English.

(d) Suppose that a huge earthquake hits Japan and the Japanese government is forced to increase the government expenditure What will happen to the nominal and real exchange rate. Does it appreciate or depreciate? First, analyze it by using the graph. Then, explain it by using plain English so that even your grand mon can understand it. Does your answer really make sense?

(e)To understand the effect of a huge earthquake on the nominal exchange rate, consider another story. After the huge earthquake in 2011, many harbours in the east coast of Japan were heavily damaged. Also, foreign consumers started to buy less Japanese product due the concern that some Japanese products might be contamination by nuclear radiation, especially, agricultural products. This can be understood as the shift of NX curve on the left. In other words, even if the real exchange rate is the same, the Japanese NX becomes smaller. Suppose that the Japanese government does not increase the government expenditure, but only NX curve shifts to left after the big earthquake. What will happen to the nominal exchange rate and real exchange rate.

(d) Look at the trend of the exchange rate after March 2011. Which story is more likely to be true?(The date is available on the class website. Please look at the exchange rate between yen and USD).