Econ 252 - International Finance
Problem Set 1

Due Date: Tuesday Sept 26, 2018 at the **beginning** of the class. 100 points total score.

1. Give a brief definition (one or two sentences) for each of the following (4pts):
a) Small economy
b) Open economy
c) Intertemporal marginal rate of substitution
d) Fisherian Separation

2. (30 pts)
a) Draw the two-period budget constraint for a country that produces 100 units of output in the first period, 88 units in the second period and faces an interest rate of 10%.
b) Suppose the country is consuming the same amount in both periods. However, after a bad negotiation, the country can lend but not borrow, would it be better off, worse off, or the same?
c) Suppose the country is consuming the same amount in both periods. However, after a bad negotiation, the country realizes it was indebted and hence $B_0 = -40$, and the country can lend but not borrow, would it be better or worse off?

3. (15 pts) Assume $B_0=0$ and take the budget set derived in Q. 2.a)
a) Assume preferences are given by $u(C_1,C_2)= \ln(C_1)+0.8\ln(C_2)$. Derive the country's optimal consumption stream and savings as well as the net foreign asset position B_1. Hint: You can try setting up the constrained maximization problem and solve it by substitution as in the notes or start off from the optimality condition equating marginal costs and benefits of savings.
b) Assume the interest rate increases to 25%. Redo part a).

4. (10 pts) Suppose the utility function is of the form: $U(C_1,C_2) = u(C_1) + (1 / 1+ \delta)u(C_2)$.
Prove the following statement and give the intuition behind the result: *If $\delta > r$ then $C_1 > C_2$.*

5. (16 pts) Consider an economy that optimally decides to perfectly smooth consumption in a two-period model. Allocations are such that $C_1 < Q_1$. Explain the movements in C_1 , C_2 , B_1 and the trade balance (TB_1) after the following shocks:
a) A sudden decrease in Q_1 after a natural disaster.
b) An expected decrease in Q_2 such that in present value the change is of the same magnitude as in a).

6. (15 pts) Imagine a world with only two economies: one advanced economy and one emerging economy. If the advanced economy is running a large negative NFA position then:
a) What can you say about the NFA of the emerging economy?
b) Now imagine that the emerging economy has been accumulating reserves and has invested them at the advanced economy's interest rate. If the advanced economy's interest rate decreases what can you say will happen to the advanced economy's NFA position and its current account?
c) Explain in one or two sentences if this world is experiencing a global imbalance.

7. (10 pts) In the two-period model of investment the production function is given by $Q=9K^{(2/3)}$. The initial capital stock is $K_1=110$. The interest rate is 20%.
a) What is the optimal amount of investment if capital depreciates 100 percent per year?
b) How would your answer to a) change if capital depreciated by 10 percent per year?