# Problem set n.1

1. Richland has 500 units of labor available. He can produce two goods: iron and corn. The unit labor requirement in the production of iron is 1, while in the corn production is 2.
a. Graph Richland's production possibility frontier.
b. What is the opportunity cost of iron in terms of corn

2. Consider the country Poorland which has 1000 units of labor. He can produce 1 unit of iron with 12 unit of labor and 1 unit of corn with 4 unit of labor.
a. Graph Poorland's production possibility frontier.
b. Show the comparative advantage of each country (Richland vs Poorland).
c. Graph the world relative supply curve.
   Considering that the relative demand curve is $P_I/P_C = 4 - Q_I/Q_C$, calculate:
d. The equilibrium price.
   Fixing the price of 1 unit of iron at €10, find:
e. The monetary price of 1 unit of corn.
f. The wage per unit of labor of the iron workers.
g. The wage per unit of labor of the corn workers.

3. Because of the wage differential, 50 units of labor move from Poorland to Richland:
a. Graph the new possibility frontiers of the two countries and compare with the previous one.
b. Graph the new world relative supply function.
c. Calculate the new equilibrium price assuming that the demand curve has not changed.
d. Keeping fixed the price of 1 unit of iron at 10€, find the monetary price of corn, the corn workers' wage and the iron workers' wage. Compare with the situation before the migration to Richland.

4. After the migration to Richland, in Poorland the corn workers introduce an important technological advancement. Now they can produce 1 unit of corn with 2 unit of labor:
a. Graph the new possibility frontier and compare with previous ones.
b. Graph the new world relative supply curve.
c. Assuming constant the relative demand curve, calculate the equilibrium price.
d. Keeping fixed the price of 1 unit of iron at 10€, find the monetary price of the corn and the monetary wage of the corn workers and compare with the previous situations.

5. Show how the pattern of trade changes between Home and Foreign with the change of the home and Foreign wage ratio. Consider the case when Home wage is three time the Foreign wage and the case when the Home wage is five time the Foreign wage.

| Goods | Home unit labor requirement | Foreign unit labor requirement |
|---|---|---|
| sodas | 1 | 12 |
| bananas | 4 | 21 |
| hats | 3 | 15 |
| shoes | 6 | 12 |
| ananas | 18 | 8 |

6. The Ricardian model was developed by economists more than 200 years ago. Explain what the strengths of this model are if it still has a predictive ability to explain the pattern of trade of current economies. Indicates what the limits of the model are and which phenomena it cannot explain.