

# International Trade – Fall 2019

## Problem Set 1

### General equilibrium and Ricardian model

#### 1. Review of general equilibrium

Consider a two-country, two-good model of exchange. Preferences for Home and Foreign are, respectively

$$\begin{aligned}u_h(x, y) &= x_h^{1/4} y_h^{3/4} \\u_f(x, y) &= x_f^{3/4} y_f^{1/4}\end{aligned}$$

- Suppose the countries' endowments are  $v_h^x = 1, v_h^y = 3, v_f^x = 3, v_f^y = 1$ . Compute the equilibrium consumption bundles and prices under autarky as well as under free trade. What are each country's imports and exports under free trade?
- Suppose now that the countries' endowments are  $v_h^x = 1, v_h^y = 3, v_f^x = 3, v_f^y = 3$ . Compute the equilibrium consumption bundles and prices under autarky as well as under free trade. What are each country's imports and exports under free trade?
- What happens to utility in the two countries if we go from autarky to free trade?

#### 2. Ricardian model with two goods

Suppose that two countries  $H$  and  $F$  produce cheese and wine with the following worker requirements:

	Cheese (per pound)	Wine (per gallon)	Total labor force
Home	$a_H^C = 1$	$a_H^W = 2$	$L_H$
Foreign	$a_F^C = 6$	$a_F^W = 3$	$L_F$

Assume  $L_H = L_F = 100$  workers. Preferences are Cobb-Douglas with cheese having a share  $\beta = 3/4$ .

- a. Which country has absolute advantage and which has comparative advantage in which good?
- b. Draw the production possibility frontier (PPF) for each country.
- c. Please state the autarky equilibrium conditions in both countries.
- d. Solve for the equilibrium prices and quantities when countries are not allowed to trade. Where is the relative price of cheese higher? Why?
- e. State the trade equilibrium conditions.
- f. Now suppose that countries are allowed to trade. Compute the world relative price of cheese and relative wages. Which is higher and why?
- g. Show that both countries benefit from trade.