

# Exercise Sheet 2: The Ricardian Model

## Exercise 1

Consider a Ricardian model with two goods (food and clothing) and two countries (home and foreign). Units of labor needed to produce one unit of food and clothing respectively are given by  $a_{LC} = 4, a_{LF} = 2$  for the home country and by  $a_{LC}^* = 5, a_{LF}^* = 3$  for the foreign country.

- a) Determine absolute and comparative advantage
- b) Draw the home country's production possibility frontier (draw clothing on the X-axis and food on the Y-axis). Determine relative prices under autarky. Draw an indifference curve<sup>1</sup> and show consumption and production under autarky.
- c) If the two countries open up to trade, in which range will the relative price be?
- d) Draw consumption and production of the home country under free trade. Show imports and exports of the home country.

## Exercise 2

Consider the Ricardian model with two goods (food and clothing) and two countries (country A and country B). Labor units needed to produce one unit of food or clothing respectively are given by  $a_{LF}^A = 1, a_{LC}^A = 2$  for country A and by  $a_{LF}^B = 3, a_{LC}^B = 3$  for country B. Suppose trade between the two countries occurs at prices of  $\frac{P_F}{P_C} = \frac{2}{3}$ .

- a) Which country produces which good(s)?
- b) Compute the relative wage rate  $\frac{w^A}{w^B}$ . In which country is the wage rate higher?
- c) Suppose country B increases its productivity in producing clothing, with  $a_{LC}^B$  decreasing to 1. Determine the new relative wages  $\frac{w^A}{w^B}$ .
- d) Suppose a third country which is a large agricultural producer enters the world market. The world market price of food drops to  $\frac{P_F}{P_C} = \frac{1}{4}$ . What is the production

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<sup>1</sup>You can draw an arbitrary indifference curve with the usual shape.

pattern of country A and country B now? Determine relative wages  $\frac{w^A}{w^B}$ . (use the labor productivities given initially, not the ones in subquestion c) ).

Exercise 3

Consider the Ricardian model with two goods (food and clothing) and two countries (home and foreign). Labor units needed to produce one unit of food or clothing respectively are given by  $a_{LF} = 2, a_{LC} = 1$  for the home country and by  $a_{LF}^* = 1, a_{LC}^* = 2$  for the foreign country. Total labor units are given by  $L = 500$  in the home country and  $L^* = 1000$  in the foreign country. The world consists only of the two countries.

- a) Draw the production possibility frontier of the world. (draw clothing on the X-axis and food on the Y-axis).
- b) Draw the world supply curve for clothing, with the amount of clothing on the X-axis and the relative price of clothing ( $\frac{P_C}{P_F}$ ) on the Y-axis.
- c) Draw a diagram that shows the relative wages in the home and foreign country in dependence of the relative price of clothing. Denote the home wage by  $w$  and the foreign wage by  $w^*$ . Draw a diagram with  $\frac{P_C}{P_F}$  on the X-axis and  $\frac{w}{w^*}$  on the Y-axis.