

Chapter 3 Classical Trade: Technology

Question 3.4

Assume that countries from Middle America only produce coffee and bananas. The table below gives the total units of labour available in five countries, as well as the number of labour units needed to produce a kilo of coffee or a kilo of bananas.

Table: Total labour endowment and requirements in Middle American countries

	Total labour endowment	Labour requirements	
		Coffee	Bananas
Costa Rica	40	2	$\frac{1}{4}$
El Salvador	60	$2\frac{1}{2}$	1
Guatemala	110	4	$1\frac{1}{4}$
Honduras	60	2	$\frac{3}{4}$
Nicaragua	50	$2\frac{1}{2}$	$\frac{1}{2}$

- 3.4A Draw the total production possibility frontier of these five countries (analogous to the world production possibility frontier in section 3.7).
- 3.4B Suppose that on the world market one can get three kilo of banana by offering 1 kilo of coffee. How can you derive from the figure which country will produce which product?
- 3.4C Do the same when the price on the world market is 5 kilo of banana for 1 kilo of coffee.

Question 3.5

Discuss the following quote, taken from an American internet site, based on your knowledge of chapter 3:

"During the industrial revolution, a period where our nation experienced the greatest economic boom in its history, the United States utilized protectionist tariffs, and wages were steadily on the rise. In the 1970's, our companies began to move offshore, and the government went along with a

massive deregulation of imports so these companies could get their products in because they were moving out. Also in the 1970's, wages began a steady decline as companies took advantage of cheap labour abroad to satisfy the consumers supposed desire for cheaper prices, and that wage decline continues today. Is there a connection between companies shutting down domestic production, laying off Americans, employing cheap labour to ship products back to the United States and the decline of the American standard of living? You bet there is!"

(Source: <http://www.buyamerican.cc/protectionism.shtml>, 2001)

Question 3.6

History offers lots of interesting examples of countries losing or gaining a comparative advantage in a certain industry. Search the internet to find out which factors determined the success or fall of the industries below:

3.6A Deindustrialization of 19th century India

3.6B The decline of the British textile industry after the first World War

3.6C The decline of the pearl industry in Kuwait at the start of the 20th century

Question 3.7

In section 3.6 the theory of comparative advantage was empirically analyzed for Europe and Kenya.

First by calculating the Kenyan “export (%) - import (%)” indicator:

$$export(\%) - import(\%) = \frac{Export\ industry\ i}{Total\ exports} - \frac{Import\ industry\ i}{Total\ imports}$$

Second, by calculating the relative productivity ratio:

$$\text{Relative productivity ratio} = \frac{\left(\frac{\text{Value added per employee Kenya industry } i}{\text{Average value added per employee Kenya}} \right)}{\left(\frac{\text{Value added per employee EU industry } i}{\text{Average value added per employee EU}} \right)}$$

Industry i was classified to trade according to comparative advantage if the first indicator was positive and the second indicator above 1, or if the first indicator was negative and the second indicator below 1.

The **datafile of question 3.7** contains data for exports, imports, and productivity for the Philippines and Japan, rather than Kenya and Europe. If you repeat the analysis of section 3.6 for these two countries, which sectors behave in accordance with comparative advantage? How well does comparative advantage explain the international trade flows between the Philippines and Japan?

Of course you can also do this exercise for two countries of your own choice. You could for example go to the website of one of the two national statistical offices to search for import and export data by industry between the two countries. The website of Unido (www.unido.org) offers you information on value added and employment per industry for several countries. From this you may derive the productivity per industry in the two countries.

Question 3.8

Based on statistics of the labour force and wages in a large number of countries, the **simulation file of question 3.8** models the world economy according to the assumptions of the Ricardian model. There is one factor of production (labour), two final goods (food and manufactures) and a large number of countries (123 countries). Additionally it is assumed that the consumers of every country want to spend half of their wealth on the consumption of food and half of their wealth on the consumption of

manufactures. Although a discussion on the demand side of the economy is only taken up in chapter 7, this behavioural assumption gives a more real life flavour to the model.

The top part of the excel sheet “simulation1” gives you the exogenous variables for the different countries. The middle part gives the autarky price level, consumption and production. The lower part gives you the consumption, production and net exports when countries are allowed to trade. The world price of manufactures and food you may determine yourself in the column “total” (which gives you total world production, consumption and net exports). Excel sheet “simulation2” will only be used in the next question.

- 3.8A What is the equilibrium price of manufactures and food (p_m/p_f) of simulation 1? How do you know this is the equilibrium price?
- 3.8B What happens to the production of food and manufactures in most countries when they move from a situation of autarky to a situation of free trade.
- 3.8C Explain whether most countries are better off by opening the borders to trade.
- 3.8D Explain whether all countries in the simulation are better off by moving from a situation of autarky to a situation of trade.

Question 3.9 (only in conjunction with question 3.8!)

Economists are sometimes blamed for only paying attention to the large economies and neglecting the small ones. The Ricardo simulation gives you a feel why economists pay for example more attention to the US economy compared to the Albanian economy.

The **simulation file of question 3.8** also contains an excel sheet “simulation2”. This sheet looks in fact similar to sheet “simulation1”. The only difference is that in the upper part of this sheet you are allowed to change the exogenous variables and in the lower part can compare the differences between the trade equilibrium in simulation 1 and the trade equilibrium in simulation 2.

Initially we assume that countries are allowed to trade and the world equilibrium is as given in question 3.8. Now we are going to research the consequences of a jump in the fertility rate which increases the labour force by 25% and an improvement in productivity in the manufacturing sector of 50% in both Albania and the United States.

- 3.9A Suppose for one reason or another the fertility rate goes up in Albania and the labour force increases by 25%. What are the consequences for Albania and the rest of the world?
- 3.9B Assume instead that the labour force increases by 25% in the United States. What are the effects for the United States and the rest of the world?
- 3.9C Now suppose instead that productivity in the Albanian manufacturing sector improves by 50%. What are the results for Albania and the rest of the world?
- 3.9D Assume instead that productivity in the US manufacturing sector improves by 50%. What are the consequences for the US and the rest of the world?