Econ 355 - International Trade

2012-13

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Problem Set 1
Due Wednesday, January 16, 2013
by 1pm in class or on Vista

1 High and low tariffs

Find and report three goods for which Canada, the US and Japan all have very high tariffs and three goods for which they all have very low tariffs. Be specific by indicating the name of the product, the tariff applied for all three countries and the source document. To do so you need to find the equivalent of the Canada Border Services Agency (CBSA) in the US and Japan and find the document equivalent to the Customs Tariff I showed in class.

2 Building the Ricardian Model

This problem set is going to help you construct the Ricardian model that we have seen in class.

1. Consider a country, Home, populated by a labor force of $1,200$ workers. The country can produce two goods, Apples and Bananas. Labor is the only factor of production and it can freely move across sectors. It takes 3 workers to produce one Apple and it takes 2 workers to produce a Banana.

   (a) If the country does not produce any Bananas, how many Apples can it produce (by employing all its labor in the production of Apples)?

   (b) If the country does not produce any Apples, how many Bananas can it produce (by employing all its labor in the production of Bananas)?

(c) What is the **opportunity cost** of producing an Apple in terms of Bananas? What is the opportunity cost of producing a Banana in terms of Apples?

(d) Draw the Production Possibility Frontier of this economy, with Apples on the horizontal axis and Bananas on the vertical axis.

(e) Given a certain wage w that a worker in either sector earns and given that producers of Apples and Bananas are perfectly competitive (i.e. they make no profits), what is the relationship between the wage and the price of apples p_A and between the wage and the price of Bananas p_B? (You need to write an equation that describes the relationship).

(f) Given your answer to part 1.d what is the relative price $\left(\frac{p_A}{p_B}\right)_A$ when the Home country is not allowed to trade with other countries (Home country is in autarky)? In autarky, Apple producers that go to the market in the Home country with 3 Apples, can sell them for a certain number of Bananas, how many? (it does not have to be an integer number).

(g) Consider an hypothetical alien who arrives in the Home country and offers 2 Bananas for each Apple, or $\frac{1}{2}$ of an Apple for each Banana. Faced with the domestic price $\left(\frac{p_A}{p_B}\right)_A$ what do domestic producers of Apples do? Do they sell to the alien or do they try to sell in the domestic market for $\left(\frac{p_A}{p_B}\right)_A$? What about Banana producers: would they like sell to the Alien or would they like to sell at the domestic price of Bananas? Will anyone in the Home country exchange Bananas at the rate $\left(\frac{p_A}{p_B}\right)_A$ now that they can buy Bananas for $\frac{1}{2}$ an Apple each? Since domestic Banana producers are bound by the Home technology to produce at the opportunity cost that you calculated in 1.c will they produce any Bananas? Given the alien's offer what happens to the production of Apples and Bananas in Home: how many Apples and Bananas will the country produce?

(h) Repeat all the steps in question 1.g, but now imagine that the alien offers 1 Apple for 1 Banana.

(i) Repeat all the steps in question 1.g, but now imagine the alien offers 1.5 Bananas for 1 Apple or $\frac{2}{3}$ of an Apple for 1 Banana.

2. Now consider another country, Foreign, characterized by the following technology and labor force. Unit labor requirements are as follows: 5 units of labor per Apple, 1 unit of labor per Banana. Labor force is 500 workers.

(a) Answer sub-question 1.a for the Foreign country.

(b) Answer sub-question 1.b for the Foreign country.

(c) Answer sub-question 1.c for the Foreign country.

(d) Answer sub-question 1.d for the Foreign country.

3. Now we are ready to allow the two countries to trade with each other.

(a) Putting together your answers to the previous questions draw the Relative Supply of Apples to Bananas as a function of their relative price $\left(\frac{p_A}{p_B}\right)$ for the entire world (in this case the world is just the two countries Home and Foreign).

(b) Knowing that the world Relative Demand of Apples to Bananas is:

$$\frac{Q_A}{Q_B} = \frac{1}{\left(\frac{p_A}{p_B}\right)}$$

check that the equilibrium trading price $\left(\frac{P_A}{p_B}\right)_T$ is equal to 3/2, i.e. check that at this price relative supply and relative demand are equalized.

(c) Describe the pattern of specialization in the world: what good does the Home country export to the Foreign country? Is there complete or incomplete specialization?

(d) Now go back to the initial PPF (Production Possibility Frontier) for the Home country. Indicate on this graph the production point for Home. Also indicate qualitatively where the consumption point under trade is for the Home country. Is the Home country better off (i.e. can it consume more of both goods) under trade?

(e) Repeat part 3.d for the Foreign country. Is the Foreign country better off?

(f) What do you conclude about the gains from trade in this model? Are both countries better off? Why?