Econ 355 - International Trade

Winter 2012-13

Professor Matilde Bombardini

Problem Set 2
Due Wednesday, January 30, 2013
by 1 pm in class or on Vista

1 Importing cheese in Canada - Part 1

This question is going to involve some research into restrictions on cheese imports in Canada and their potential welfare cost. I am going to split this question into several parts. The aim is to build a case study of the cheese industry that we can discuss in class when we arrive at the trade policy section of the class. For now I would like you to collect facts. You have to find on the internet or through other sources information on various characteristics of the cheese industry. Please cite sources for all your answers (website link is enough).

1. What is the total consumption of cheese in Canada per year? You should be able to easily find per capita consumption of cheese and total population. Rough approximations are fine.

2. What is the annual "quota" for cheese imports into Canada (the maximum amount of cheese allowed into the country) in recent years? It's not really called a quota these days, but rather "access commitment". What percentage of total cheese consumption do imports represent?

3. How many workers are involved in cheese production in Canada? Can you find a provincial breakdown of cheese (or dairy) production? What are the top three cheese producing provinces and how many workers do they each employ? What's the percentage of Canadian population employed in cheese manufacturing?

4. Imagine you want to start importing cheese in Canada. If you have an import permit you will not pay the 245-270% tariff that I showed you in class. If you are "outside" the quota

then you will have to pay those tariffs. Now you obiously would like to try and obtain an import permit. Describe the steps involved in obtaining a permit if you can find them. What do you think "traditional cheese importers" are?

2 Popular press and the Ricardian model

Read the article from the magazine The Economist, "Trade Winds" (Nov 6th, 1997) posted on Vista and answer the following questions.

1. Graph the Production Possibility Frontier for the two countries: East and West (put Bicycles on the horizontal axis and Computers on the vertical axis).

2. You are told that "the terms of trade are fixed at 12 bicycles per computer". What is the trade price of Bicycles relative to Computers $\left(\frac{p_B}{p_C}\right)_T$ (in other words what is the price of Bicycles in terms of Computers)?

3. Given this trade price $\left(\frac{p_B}{p_C}\right)_T$, could West do better than producing 150 Bikes and 70 Computers?

4. How do you justify the statement that "it is not true that countries with cheap labor always have lower costs"?

3 Productivity and Wages

Using the same setup from the previous question to answer the following questions:

1. At the trade price that you are given in part 2. of the previous question what is relative wage of West and East, that is what is $\frac{w_{WEST}}{w_{EAST}}$?

2. Imagine that, due to an increase in demand for bicycles, the price jumps to $\left(\frac{p_B}{p_C}\right)_T = \frac{1}{10}$. What happens to the relative wage $\frac{w_{WEST}}{w_{EAST}}$? Explain briefly which country (East or West) is likely to gain from this.

3. Now consider a starting equilibrium price of $\left(\frac{p_B}{p_C}\right)_T = \frac{1}{25}$. At this price what do the two countries produce? Suddenly the productivity of East in computers improves so that it now takes 60 units of labor (instead of 100) to produce one computer in East. Assume that after this technological improvement East is still producing both goods. What happens to the

relative wage $\frac{w_{WEST}}{w_{EAST}}$? What happens to West's terms of trade? Could West be worse off? Briefly explain the logic behind your answer.

4 Specific factor model

Home produces two goods, Computers and Desks, using three factors of production, skilled labor (H), unskilled labor (L) and capital (K).

Computers are produced using only skilled labor H (**immobile** factor used in Computers) and capital K_C (**mobile** factor) according to the following production function:

$$\begin{aligned} Q_C &= H^{\frac{1}{2}} K_C^{\frac{1}{2}} \\ MPK_C &= \frac{1}{2} \frac{H^{\frac{1}{2}}}{K_C^{\frac{1}{2}}} \end{aligned}$$

Desks are produced using only unskilled labor L (**immobile** factor used in Desks) and capital K_D (**mobile** factor) according to the following production function:

$$\begin{aligned} Q_D &= L^{\frac{1}{2}} K_D^{\frac{1}{2}} \\ MPK_D &= \frac{1}{2} \frac{L^{\frac{1}{2}}}{K_D^{\frac{1}{2}}} \end{aligned}$$

The Home country is endowed with the following factor amounts: $H = 9$, $K = 20$, $L = 4$.

Assume for now that the two countries are in autarky.

1. You are given the autarky prices of Computers and Desks, $p_C = \frac{\sqrt{2}}{3}$and $p_D = 1$.

   (a) What is the allocation of the mobile factor (capital) across the two sectors? In other words at these prices what is K_C and what is K_D?

   (b) What is the return (call it w_K) to the mobile factor (capital) at these prices? What is the return calculated in terms of computers $\frac{w_K}{p_C}$? What is the return calculated in terms of desks $\frac{w_K}{p_D}$?

   (c) Now that you know how much the mobile factor is paid, use the graph that we built in class to indicate **GRAPHICALLY** (you are not required to calculate a number here) the total payments/returns to the specific (immobile) factors (call them W_H for skilled workers and and W_L for unskilled workers).

2. Now imagine Home can trade with a Foreign country that is better at producing Desks. After opening to trade with the Foreign country the price of computers increases to $p_C^T = \frac{2}{3}$ (the numeraire good, desks, still has the same price $p_D^T = 1$).

   (a) Why does the price of computers increase under trade relative to the Home autarky?

   (b) What happens to the allocation of capital (the mobile factor) across sectors? In other words recalculate K_C and K_D after the price change.

   (c) What happens to the return to capital w_K? Calculate $\frac{w_K}{p_D}$ and $\frac{w_K}{p_C}$ after the price change.

   (d) Describe **GRAPHICALLY** (again no numbers to calculate) what happens to the real returns to the two specific factors W_H and W_L.

   (e) Summarize your results about the impact of trade on income distribution: are the owners of capital winners or losers? Are the skilled workers winners or losers? Are the unskilled workers winners or losers?