ECON 39: Undergraduate International Trade
Problem Set #5
Professor Treb Allen
Due: Tuesday March 6 at the beginning of class

Preliminaries

This week, we are learning how to use our general equilibrium gravity trade model to analyze the welfare effects of trade policy in the real world. To do so, we are going to have to get our hands dirty with some actual data and some actual programming. The plan is to work through the majority of this problem set in class; however, you are ultimately responsible for turning in the solutions on the last day of class.

Questions

1. Install Matlab on your computer. To do so, go to: https://caligari.dartmouth.edu/downloads/matlab/

2. Download Econ39_Allen_PS5.m and Econ39_Allen_PS5.mat from the class website. Econ39_Allen_PS5.m is the computer program this problem set will rely upon and Econ39_Allen_PS5.mat is the trade data we will be using.

3. Open Econ39_Allen_PS5.m. Try to run it. You should get an error that says "Unexpected MATLAB operator." This is because I have replaced six key parts of the program with the symbols "???". Replace the "???" with the correct codes.

4. Explain in words how the algorithm on lines 35-41 works.

5. Calculate the welfare effects of a 40% increase in the cost of shipping a good from China to the U.S. and print out the scatter plot figure. Who is the biggest loser from the policy? Who is the biggest winner? What is the intuition?

6. If the trade elasticity ε increased from 4 to 8, are the welfare effects larger or smaller? What is the intuition?

7. Suppose instead that the U.S. and Mexico engage in a trade war that makes it incredibly costly for either to trade with each other. Print out the picture of how this affects the welfare in all countries. Who is the biggest loser from the policy? Who is the biggest winner? What is the intuition? [Hint: Mexico is country 55 and the U.S. is country 89 in the data.]