

Economics 165
Problem Set 5

1. Consider the 2-country 2-good Ricardian Trade Model.
 - (a) Depict graphically the free-trade equilibrium of the model when one country (country A) is “small” compared to the other country (country B).
 - (b) Demonstrate that A cannot increase its aggregate national income by imposing a tariff on its import good.
 - (c) Finally, suppose that A is pursuing a consumption goal, and determine whether an import tariff or a consumption tax would be a better policy for this purpose. What feature of the Ricardian Trade Model accounts for the special nature of your answer here?

2. Consider the following “special case” of the two-country (countries A and B) two-good (goods x and y) basic trade model. Country A is endowed with capital and labor, and its technologies for producing x and y use capital and labor as inputs and exhibit constant-returns-to-scale. Country B, however, is special: while it also faces constant-returns-to-scale technologies for producing x and y , it is endowed with only labor, and its technologies for producing x and y require only labor as inputs.

In this setting, show that, if country B produces positive amounts of both x and y in the free trade equilibrium between it and country A, then the “optimal tariff” for country A (i.e., the tariff that maximizes A’s aggregate social welfare) is zero (i.e., a policy of free trade).

3. Using the Continuum-of-Goods Ricardian Trade Model, suppose that the home-country unit labor requirement for good $z \in [0,1]$ is given by $l(z) = l + \theta z$, while the foreign-country unit labor requirement for good $z \in [0,1]$ is given by $l^*(z) = l^* + \theta^* z$. Let us interpret θz as the amount of labor required to comply with the pollution standards of the domestic country when producing one unit of good z in the domestic country. Likewise, $\theta^* z$ is the amount of labor required to comply with the pollution standards of the foreign country when producing one unit of good z in the foreign country. So for a given pollution standard, we can think of low- z goods as “naturally clean” goods, because it doesn’t take much labor to clean up the production process and meet the standard, while high- z goods are “naturally dirty” goods.

Show that, if the domestic country has strict environmental standards while the foreign country has none (i.e., if $\theta > 0 = \theta^*$), then (i) the domestic country will specialize in a range of naturally clean goods, and (ii) if the domestic country tightens its pollution standards (i.e., if θ is increased), then a range of the dirtiest goods among those originally produced in the domestic

country will stop being produced domestically and will instead be produced in the foreign country.

4. On Monday, May 1, 2006, hundreds of thousands of immigrants across the United States skipped work to create a “Day Without an Immigrant,” hoping to influence the debate in Congress over granting legal status to the estimated 11 million illegal immigrants in the country. The idea, in part, was to provide a graphic illustration of the economic impacts that deportation of large numbers of illegal immigrants would have in this country. The Congressional Budget Office (CBO) has been asked by Congress to assess the likely impacts that the temporary boycott had on economic activity during the day of May 1, and to evaluate whether these short run impacts are likely to be a good guide for the long term impacts if similar numbers of illegal immigrants are permanently deported as part of immigration reform.

You are a summer intern working for CBO, and here is your chance to really impress the boss, by answering questions (A), (B) and (C) below. In answering each of these questions, you may assume that the United States is a *small* open economy.

(A) Use the Specific Factors Model (in which there is capital that is specific to the food sector, and capital that is specific to the clothing sector, and labor that is perfectly mobile between the two sectors) to make a prediction about the likely impacts that the boycott (i.e., the reduction in U.S. labor endowment) had on economic activity during the day of May 1 (i.e., the short run impact). In particular, what will happen to output in each sector and to real incomes of the non-boycotting workers and owners of each kind of capital when the U.S. labor endowment is reduced?

(B) Use the Heckscher-Ohlin Model (in which there is capital and there is labor, and each is perfectly mobile between the capital-intensive food sector and the labor-intensive clothing sector) to evaluate the long term impacts if similar numbers of illegal immigrants are permanently deported as part of immigration reform (causing a reduction in U.S. labor endowment). In particular, what will happen to output in each sector and to real incomes of the remaining workers and owners of capital if the U.S. labor endowment is reduced? In light of your answer here and in part (A), are the likely impacts of the May 1 boycott a good guide for what we could expect in the long run if similar numbers of illegal immigrants are permanently deported?

(C) There is some debate about whether the United States is better described as a Heckscher-Ohlin economy or a Ricardian economy. So just to be on the safe side, use the 2-good Ricardian Model (in which labor is the only factor of production, and is perfectly mobile between the food sector and the clothing sector) to evaluate the long term impacts if similar numbers of illegal immigrants are permanently deported as part of immigration reform (causing a reduction in U.S. labor endowment). In particular, what will happen to output in each sector (you may assume that the United States is initially specialized in the production of food) and to real incomes of the remaining workers if the U.S. labor endowment is reduced? In light of your answer here and in part (B), does it matter whether the United States is a Heckscher-Ohlin economy or a Ricardian economy for predicting the long run impacts of deporting illegal immigrant workers?