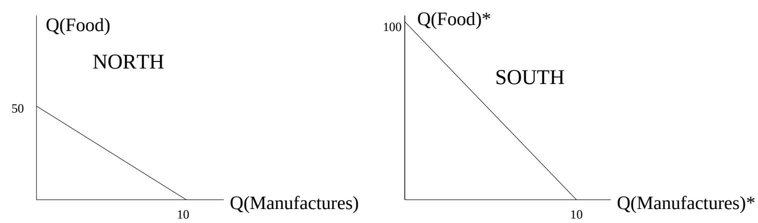
Econ 165 Stanford University
Winter 2001/02 Gerald Willmann

Midterm Exam

This is a 60 min exam. There are four equally weighted questions. Please read them carefully and answer each of them. If you have any questions do not hesitate to ask me. I will be outside. *Good luck, viel Glück, bonne chance, y mucha suerte !!!*

Question 1: Consider a world consisting of two countries: North and South. Labor is the sole factor of production and North's labor force numbers 100 while South has a labor force of 400. The production possibilities are depicted in the following diagram:



a) Explain the difference between comparative and absolute advantage. Which country has the comparative advantage in producing food in this world? In which country do workers receive a higher wage?

b) Derive the world's relative supply schedule, i.e. graph the relationship between $\frac{Q_M+Q_M^*}{Q_F+Q_F^*}$ and p_M/p_F. Please make sure to label the axes and provide exact numbers.

c) Suppose that under free trade South produces both goods whereas North is completely specialized. Add a relative demand curve to your diagram that implies such an equilibrium. Which country gains more from trade and why?

Question 2: Consider the market for sugar. The U.S. imports sugar from the world market whereas Cuba is an exporter of sugar.

a) Suppose the U.S. is a small country. Depict graphically the imposition of an import tariff on sugar. Which domestic group (consumers, sugar producers, government) gains how much? What is the net welfare effect of the tariff?

b) Now, suppose the U.S. is a large country. In a diagram with national welfare on the vertical and the tariff on the horizontal axis, depict how national welfare changes as the tariff increases. Indicate the optimal tariff and the prohibitive tariff in your diagram. How does national welfare at these two tariffs compare to welfare under free trade? Provide an argument for each comparison.

c) Cuba's maximo lider, desperate for cash, considers an export tax on sugar. Depict a situation where such a tax not only raises revenue but actually raises national welfare.

Question 3: Consider the monopolistic competition model of trade.

a) Explain verbally how average cost and price in such an industry depend on the number of companies. Why does one increase while the other decreases as companies become more numerous?

b) In a diagram with average cost and price on the vertical and the number of companies on the horizontal axis, depict what happens to the number of companies and to the equilibrium price as the country opens up to trade with another country of equal size. Has the total number of companies in both countries increased or decreased?

c) Explain the difference between intra-industry and inter-industry trade. In 2000 the U.S. exported (imported) 82 (73) billion worth of chemicals and 13 (133) worth of fuels. Calculate a measure of intra-industry trade to determine which sector had a higher degree of intra-industry compared to inter-industry trade.

Question 4: Let the home country be relatively capital abundant and the rest of the world labor abundant. Suppose further that both possess the same technology for producing hightech and lowtech. The production of hightech is capital intensive whereas the production of lowtech is labor intensive. They also exhibit the same consumption pattern irrespective of income level.

a) State the Heckscher–Ohlin result. Who exports hightech and who lowtech?

b) Describe how Leontief tested the HO result. How did he measure relative factor endowments, factor intensities in production, and the trade pattern? What did he find?
If you cannot remember what he did, describe how you would do it.

c) State the Stolper–Samuelson result. What does it imply for the wage and the rent on capital in each country as home and the rest of the world start trading with each other? Describe the magnification effect associated with the Stolper–Samuelson result. What does the magnification effect imply for the real incomes of capital and labor owners as home and the rest of the world open up to trade?