

Economics 507a: International Trade
Third Homework Assignment
Due October 25, 2007

1. (due to Alan Deardorff) Consider the Helpman-Krugman two-sector model in which two factors, K and L , produce a labor-intensive homogeneous product, Y , and a capital-intensive differentiated product, X , under monopolistic competition with free entry. Dixit-Stiglitz preferences, and low enough fixed costs for there to be a large number of firms. Start at an initial equilibrium with factor price equalization and with the home country a net exporter of capital and a net importer of labor in terms of the factor content of trade. Suppose then that the world endowments of capital and labor both increase by 25 percent.
 - a) Assuming that preferences of all consumers are identical and homothetic, how will the new integrated world economy (IWE) compare to the old in terms of prices of goods and factors, outputs of goods, and number of firms in the X industry?
 - b) If the new capital and labor are distributed to the two countries in proportion to their initial endowments, what will happen to the outputs of the two goods in each country, to their consumption, and to trade?
 - c) If the new capital and labor are located instead in the foreign country, what will happen to outputs, consumption, and trade in both countries? Which of these quantities will rise by the greatest percentage?
 - d) Defining the volume of intra-industry trade as the minimum of the home country's exports and imports of X , how will the volume of intra-industry trade change in cases (b) and (c)?

2. Melitz (2001) develops a monopolistic competition model with entry costs, both for new firms and for firms entering new export markets. The model predicts that market shares will shift toward the more efficient producers when a country moves from autarky to free trade. Thus open economies are more productive.
 - a) Explain, as concisely as possible, how an increase in transport costs changes the gains from trade in Melitz's model.
 - b) What is known empirically about the importance of export market entry costs and about the gains from trade due to intra-industry market share reallocations?

3. The island economies of Grandísimo and Pequeña maintain a common tariff rate, τ , on each other's exports, and prohibitive trade barriers *vis a vis* all other countries. They are considering forming a free trade area with each other—i.e., setting $\tau = 0$ —while maintaining their trade barriers *vis a vis* the rest of the world. Adopting the assumptions of the Melitz/Ottaviano (2005) model, and assuming that Grandísimo is much larger than Pequeña, explain how this policy is likely to affect each of the following variables *in the short run, and in the long run*. Be sure to contrast responses in the two countries when they are qualitatively or quantitatively different.
 - a) Average mark-ups among goods sold in each country.
 - b) Average productivity levels among goods produced in each country
 - c) The number of product varieties sold in each country.

4. In Melitz and Ottaviano (2005), the parameter k determines the shape of the cost distribution $G(c)$. Suppose k falls for some exogenous reason—e.g., the advent of the computer age.
 - a) How will this affect the autarky equilibrium for a representative country? In your answer, discuss the effects on average productivity levels, average mark-ups, the firm size distribution, and welfare. In addition to backing up your claims with algebra, provide economic intuition for the responses wherever possible.
 - b) How, if at all, will this decrease in k change the effects of *unilateral* trade liberalization? As in part (a) above, consider responses in terms of average productivity levels, average mark-ups, the firm size distribution, and welfare.
 - c) Rather than k falling, suppose technological progress takes the form of a shift in the support of $G(c)$ from $(0, c_M]$ to $(0, c_M']$, where $c_M' < c_M$. How will this type of shift affect the trading equilibrium?