14.54 International Economics
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Mid Term Exam

You have one hour and a half. Please, provide brief comments in your answers to the numerical questions and be brief and to the point in answering the short questions.

1. Biased Growth and Trade

There are two countries, Home and Foreign. There are two goods: Grains and Textiles. The preferences of the Home and Foreign consumers are described by the utility function:

$$\log x_G + \log x_T.$$

Each consumer in the Home country has a fixed endowment of 2 units of G and 1 unit of T. The consumers in the Foreign country have 1 unit of G and 2 units of T. That is, the endowments are:

$$e_G = 2, e_T = 1$$
$$e_G^* = 1, e_T^* = 2$$

(i) Show, by deriving from utility maximization, that the demand functions for the two goods by the Home consumer are given by:

$$x_G = \frac{1}{2}\frac{1}{p_G}(p_G e_G + p_T e_T)$$
$$x_T = \frac{1}{2}\frac{1}{p_T}(p_G e_G + p_T e_T)$$

(ii) Find the relative prices in autarky in the two countries, $(\frac{p_G}{p_T})^a$, $(\frac{p_G}{p_T})^{*a}$. Show that

$$\left(\frac{p_G}{p_T}\right)^a < \left(\frac{p_G}{p_T}\right)^{*a}.$$

(iii) Now suppose there is free trade. Show that the equilibrium relative price in the world market is:

$$\frac{p_G}{p_T} = 1.$$

What good is country Home exporting (importing)? Why? What are total exports of country Home?

(iv) Suppose there is growth in the textile sector in the Home country and the endowment of textiles becomes

$$e_T = 4.$$

All other endowments remain the same and there is still free trade. Find the new equilibrium price $(\frac{p_G}{p_T})^T$ in the world market with the new levels of endowment.

(v) What does this mean for the terms of trade of country Home? What are the total exports of country Home after growth has taken place? Was growth import-biased or export-biased? Who benefits from growth?

(vi*) Can you show that country Foreign is worse-off after growth (hint: show that after growth takes place country Foreign goes back to autarky consumption). Use a graphical illustration to make your point.

2. Tariffs

Consider the supply and demand of the good produced by a single industry, in a "small economy", e.g. milk in Italy.

(i) Draw the demand curve and the supply curve for milk in Italy. Suppose there is no trade (autarky). In your graph, identify the consumer surplus and the producer surplus in autarky. Let the price in autarky be p_M^a

(ii) Now suppose the country opens to trade and the international price of milk is

$$p_M^* < p_M^a.$$

Since Italy is small we can takt the international price of milk as given, and independent of trade policy in Italy. Show that when trade opens the production of milk in Italy decreases and the consumption of milk increases.

(iii) Use a new graph to identify the consumer and producer surplus after trade takes place. What happens to the producer surplus and to the consumer surplus after trade opens? Show that the total surplus increases.

(iv) Now suppose the government imposes a tariff on the imports of milk equal to τ and

$$p_M^* + \tau < p_M^a.$$

What happens to the italian imports of milk?

(v) Use two graphs to show: consumers, producers surplus and government revenue, before and after the tariff is imposed. Show that the tariff benefits the producers, hurts the consumers, and increases government revenue.

3. Short Questions

(a) "The poor in developing countries should welcome globalization. Since developing countries are labor-abundant trading with more capital-abundant countries will tend to increase wages and reduce inequality in those countries." Discuss in light of the theories discussed in class.

(b) "China exporters are able to keep high levels of exports thanks to its low wages. As productivity grows in China, they will gain a competitive advantsge in more and more sectors and the rest of the world won't be able to compete." Discuss this statement in light of the theories discussed in class.

(c) If a country is "large", imposing a positive tariff on some of its imports can result in total welfare gain for the country. What effect accounts for this outcome? Discuss.