

Brigham Young University Department of Economics  
**Economics 257 – Introduction to International Economics**  
Dr. Phillips (section 1) Winter Semester 2006

**Midterm Exam key**  
**March 10 - 11, 2005**

This exam is closed book and closed notes, though you may use a calculator. Read all questions carefully before answering. Write your answers legibly in the space provided. Keep your answers concise and correct. Points will be deducted for answers which are irrelevant to the question. You may use a testing center calculator to help with the math, if you wish.

**Section I (short answer, 5 points each) Where appropriate show your work as this may help in assigning partial credit if you get the answer wrong.**

1. State the Stolper-Samuelson Theorem

**An increase in the price of one good (holding the price of the other good constant) will increase the price of the factor used intensively in that good's production more than proportionally, and will decrease the price of the other factor.**

2. State the Factor Price Equalization Theorem. Does it hold in the specific factors model?

**If relative prices in two countries are the same (as in the case of free trade) then the relative prices of factors will also be the same in both countries. This does NOT hold in the specific factor model.**

3. What is a specific factor?

**A factor that can only be used in the production of one good, and not in producing any other goods.**

4. Name two important pieces of trade legislation in the U.S. and tell why they were important.

**1930 Smoot-Hawley Tariff Act – drastically raised tariff rates and helped prolong the Great Depression**

**1934 Reciprocal Trade Agreements Act – began reduction of tariffs by allowing the president to negotiate tariff reductions**

**Trade Expansion Act of 1962 – made the Kennedy round of GATT possible**

**Trade Act of 1974 – made the Tokyo round possible**

**Trade and Tariff Act of 1984 – allowed for bilateral trade negotiations**

**Uruguay Round Agreements Act of 1994 – made the Uruguay round possible**

5. What is the source of gains from trade in the Ricardian model? In the neoclassical model?

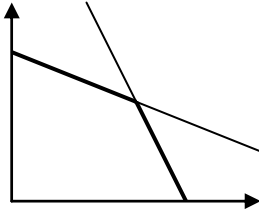
**In the Ricardian model gains come from differences in technology across countries.**

**In the neoclassical model gains come from differences in factor endowments across countries.**

6. Suppose it takes 1000 manhours to produce a car in the US and 500 in Japan. Also it takes 20 manhours to produce a batch of prescription medicine in the US and 30 manhours in Japan. What are the autarky prices of cars in terms of batches of medicine in the US and Japan? Predict which country will export which good. What model did you use to make this prediction?

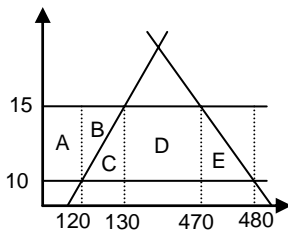
**Autarky relative prices 50 batches of medicine per car in the US, and 16.67 batches of medicine per car in Japan. Japan will export cars and the US will export medicine. This is the Ricardian model.**

7. Suppose there are two factors of production and that both goods must be produced with factors employed in unchanging proportions (i.e. fixed coefficients). Draw a production possibilities frontier (PPF) below:



**The PPF is the interior of the constraints imposed by the endowment of the two factors.**

8. Suppose demand for good X in a small open economy is given by  $Q_d = 500 - 2P_X$  and that supply is given by  $Q_s = 100 + 2P_X$ . If the world price of X is 10 and there is a import tariff of 50%, what is the deadweight loss associated with this tariff?



**At the world price of \$10, consumption is  $500 - 2 \cdot 10 = 480$ , and production is  $100 + 2 \cdot 10 = 120$ . With the tariff the price is \$15, consumption is 470 and production is 130. The deadweight loss is areas C+E which are equal to  $.5 \cdot 10 \cdot 5 + .5 \cdot 10 \cdot 5 = \$ 50$**

**Section II (longer analysis, 20 points each)**

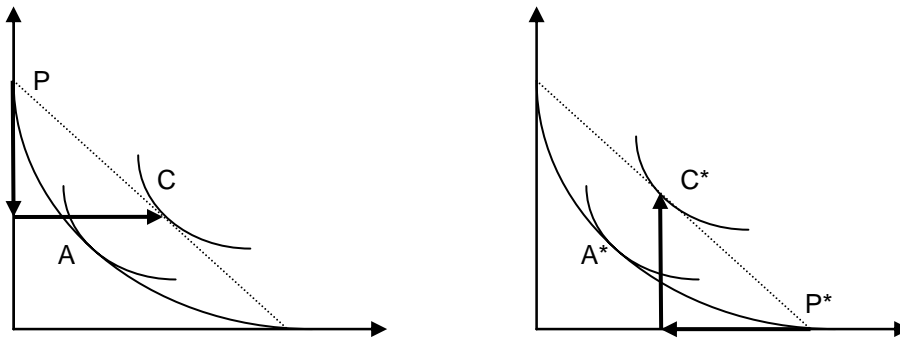
9. In the 1980's South Africa practiced apartheid, a system of racial discrimination. In an attempt to pressure the government of that country to eliminate the practice, many people argued for economic sanctions. Suppose that South Africa was relatively labor abundant. Further suppose that the majority of South African workers were black, while most of the capital was owned by whites. What effect would a trade embargo have on the incomes of these two groups? Which model did you use to arrive at your answer?

**This is a Heckscher-Ohlin or neoclassical model. If SA is labor abundant, then under the H-O theorem it will export labor intensive goods. Moving from free trade to autarky will cause the relative price of labor intensive goods to fall. By the Stolper-Samuelson theorem, this will cause a more than proportional drop in the price of labor (the wage rate) and an increase in the price of capital (the rental rate). Hence, a trade embargo would have made black South Africans worse off and white South Africans better off.**

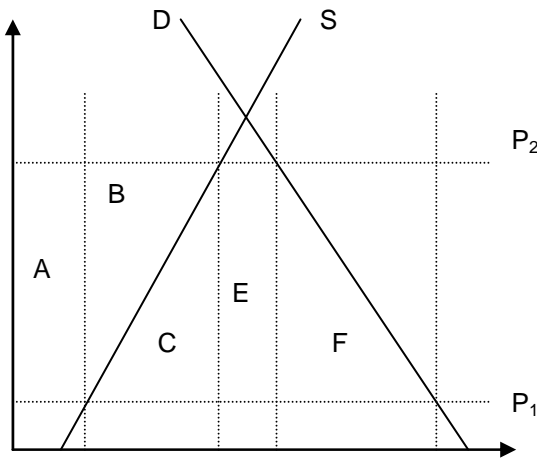
10. True, False or Uncertain. Explain your answer. If autarky prices are the same in two countries there are no possible gains from trade between them.

**Uncertain.** It depends on the assumptions one is willing to make. Under the neoclassical assumption of constant returns to scale, the statement is true. The differences that lead to gains from trade (differences in technology, factor endowment, or tastes) will all lead to different autarky prices. If the autarky prices are the same, then there are no potential gains from trade.

On the other hand, if we allow for economies of scale (also known as increasing returns to scale) then it is possible that two identical countries which have identical autarky prices, could still gain from trade. If the returns to scale are sufficient to make the PPF bow inward, then one country can specialize in one good and the other specialize in the other good and both will be able to consume more of both goods when they trade, as illustrated below.



11. Using partial equilibrium diagrams for a small open economy discuss the differences between an import tariff and a production subsidy of the same size. Which has the smallest deadweight loss? Why?



In the case of an import tariff the world price is  $P_1$  and the domestic price after the tariff is imposed is  $P_2$ . Consumer surplus falls by  $A+B+C+E+F$ .  $A+B$  of this is an increase in producer surplus and  $E$  is an increase in government tariff revenue. Hence, the deadweight loss is  $C+F$ .

In the case of a production subsidy, the price consumers pay is  $P_1$  and producer's receive  $P_2$ . As above producer surplus rises by  $A+B$ . The government must pay a subsidy of  $A+B+C$ . Consumers face the same price as before, so there is no change in consumer surplus. Hence, the subsidy achieves the same welfare increase for producers, but has a lower deadweight loss.

$C$  is a loss associated with domestic producers producing goods that could more cheaply be produced overseas.  $E$  is a loss associated with consumers foregoing consumption of goods because they face a price higher than the marginal cost of producing those goods. The subsidy has a lower deadweight loss because it distorts the production decision, but does not distort the consumption decision, while the tariff imposes both distortions.