

FINAL **Version B** - Yellow Version  
Thursday, March 20, 2008

**Multiple choice - each worth 4 points**

- 1) Which theorem from the Heckscher-Ohlin model suggests why free trade should lead to all countries having the same wage?
  - a) Stolper-Samuelson theorem.
  - b) Rybczynski theorem.
  - c) Factor price equalization.
  - d) The Leontief paradox.
  
- 2) An offer curve is a graph depicting a country's
  - a) level of welfare for various terms of trade.
  - b) offers of imports and exports for various terms of trade.
  - c) offers of imports only for various terms of trade.
  - d) offers of output for both goods for various terms of trade.
  
- 3) An import quota specifies the \_\_\_\_\_ amount of a good that can be imported into a country: A country becomes more "protectionist" if they \_\_\_\_\_ the import quota.
  - a) maximum : reduce.
  - b) maximum : increase.
  - c) minimum : reduce.
  - d) minimum : increase.
  
- 4) An import tariff will lead to the following welfare change for the importing country:
  - a) Net loss regardless of whether it is small or large in the world market.
  - b) Net gain regardless of whether it is small or large in the world market.
  - c) Net loss for a small country, but possible net gain for a large country.
  - d) Possible net gain for a small country, but net loss for large country.
  
- 5) Wages in Mexico are 1/6 that of wages in the U.S. Why didn't all U.S. jobs migrate to Mexico with the North American Free Trade Agreement?
  - a) The U.S. put up new import tariffs.
  - b) Mexican workers prefer to live in the U.S.
  - c) In many industries, the U.S. is more than 6 times as productive as Mexico which means the U.S. has the comparative advantage in that good.
  - d) U.S. consumers are unwilling to buy Mexican products.

- 6) With flexible production, if the world relative price of a country's imports increases, the country will
- a) produce more of the imported good.
  - b) produce less of the imported good.
  - c) not change production of the imported good.
  - d) increase import demand.
- 7) An environmental Kuznets curve shows how pollution levels change as
- a) trade between two countries increases.
  - b) incomes rise in a country.
  - c) a country's exchange rate depreciates.
  - d) income inequality rises in a country.
- 8) A domestic production subsidy is a better way to help employment in an import-competing sector than an import tariff because
- a) it will increase consumer surplus leading to a welfare gain.
  - b) it will more likely lead to a terms of trade gain.
  - c) the production efficiency loss will be smaller for the same gain in producer surplus.
  - d) it will only cause efficiency losses in production, not in consumption.
- 9) The World Trade Organization
- a) requires each member country to eliminate all barriers to imports.
  - b) requires each member country to adopt common labor standards.
  - c) enforces monetary penalties on countries that renege on trade agreements.
  - d) rules provide each country with one vote in multilateral trade negotiations.
- 10) In the new trade theory developed by Paul Krugman, one source of gains from trade is
- a) countries' abilities to specialize in their comparative advantage.
  - b) monopolistically competitive firms' abilities to charge price above marginal cost.
  - c) improvement in production technologies.
  - d) increased variety when we trade with the other country.

**Fill in the blank - each worth 3 points**

11) Name three ways in which trade may lead to improvements in the environment.

- A) Gives countries access to green technologies
- B) Raises incomes which can increase demand for cleaner environment (Environmental Kuznets curve)
- C) Capital-intensive pollutive industries and production may locate in developed countries with more strict environmental laws

12) List three possible explanations for the Leontief Paradox.

- A) More than 2 factors of trade
- B) Imbalanced trade flows
- C) Technologies are not identical across countries  
Preferences are not identical across countries  
Trade policies like import protection

13) List three arguments that are often made in support of import protection.

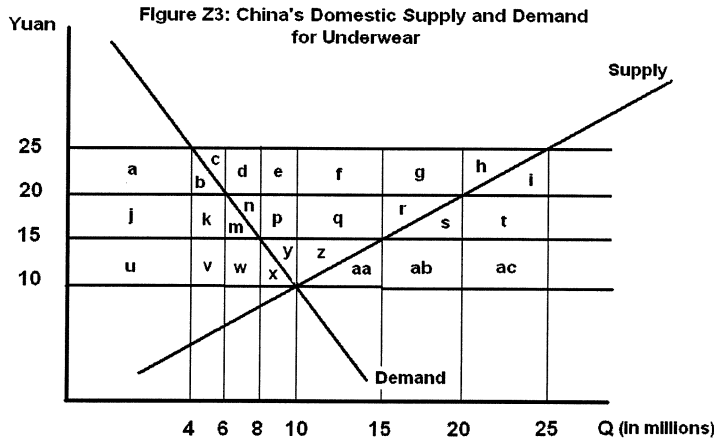
- A) Optimal tariff (terms of trade) To counteract unfair trade practices
- B) Infant Industry
- C) National Defense  
Help/protect employment in a sector  
Source of government revenue

14) List the names of two negotiating rounds of the General Agreement on Tariffs and Trade.

- A) Doha
- B) Uruguay  
Tokyo  
Kennedy

**EXPORT TARIFFS DO OCCUR!** From a recent U.S. Customs announcement: *The Government of China recently announced a list of export taxes covering 148 products in 6 categories of coats, skirts, trousers, non-knitted shirts, nightwear and underwear.*"

Use Figure Z3 to answer questions 15-19. (6 points each) Assume that China is a small country in the world with respect to the market for underwear. Suppose that the initial world price for underwear is 20 Yuan and China puts an export tariff of 5 Yuan on each pair.



15) Suppose the world price for underwear is \$20 and China puts an export tax of \$5 on each pair. What is the *ad valorem* export tariff on underwear?  $\frac{5}{20} \times 100 = 25\%$

16) Which lettered regions represent the change in consumer surplus with the export tariff?  $j+k+m$ . Is this a gain or loss in consumer surplus? Gain

17) Which lettered regions represent the change in producer surplus with the export tariff?  $j+k+m+n+p+q+r$ . Is this a gain or loss in producer surplus? Loss

18) Which lettered regions represent the net change in welfare for the Chinese economy? \_\_\_\_\_  
Calculate this welfare change in Chinese Yuan and indicate whether it is a gain or loss.

$$\begin{aligned} \nabla_n : \text{Area} &= \frac{1}{2} \times l \times w \\ &= \frac{1}{2} \times (8-6 \text{ million}) \times 5 \text{ Yuan} \\ &= 5 \text{ million Yuan} \end{aligned}$$

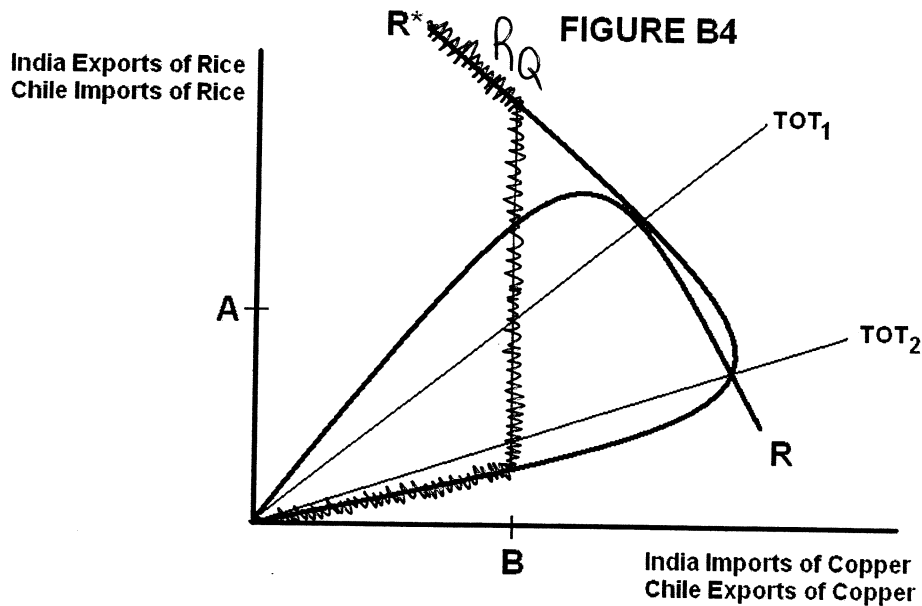
$$\begin{aligned} \nabla_r : \text{Area} &= \frac{1}{2} \times l \times w \\ &= \frac{1}{2} \times (5 \text{ million}) \times 5 \text{ Yuan} \\ &= 12.5 \text{ million Yuan} \end{aligned}$$

⇒ Loss of 17.5 million Yuan

19) Would China be better or worse off implementing an export tax if it is a large country, rather than a small country? Explain.

*It would be better off as a large country since the export tax would restrict export supply to the world and raise the price of China's exports, yielding a terms of trade gain.*

**OFFER CURVE ANALYSIS.** Use Figure B4 to answer questions 20-25. (5 points each)



20) In Figure B4, which country corresponds to which offer curve (R or R\*)?

Chile: R\* India: R

21)  $TOT_1$  is closer to which country's autarky prices? India's

22) Using the definition of "stable equilibrium", explain whether  $TOT_1$  is a stable equilibrium terms-of-trade or not.

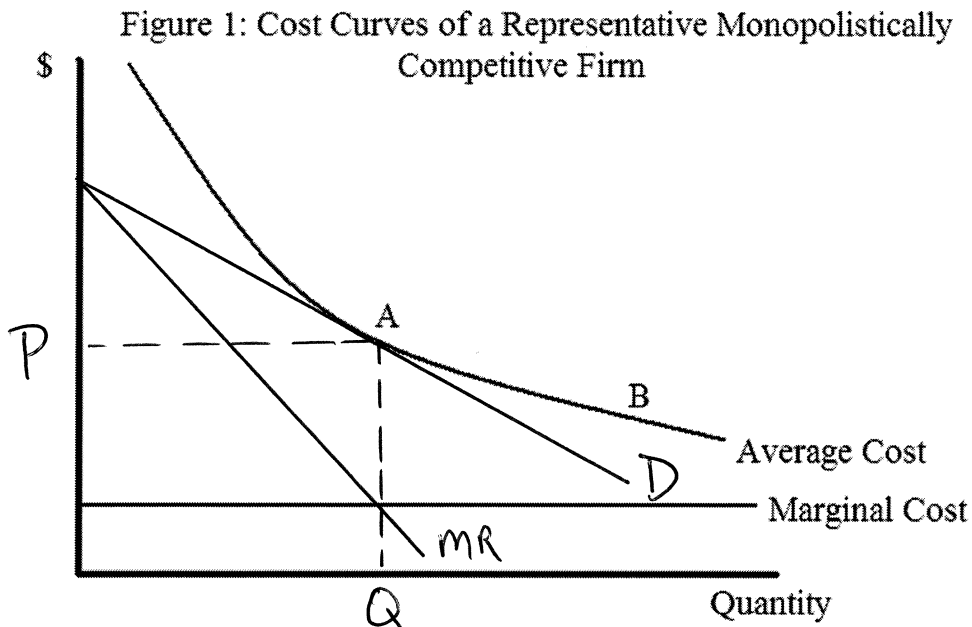
It is not stable. For example, if the relative price of copper fell a little bit, this would cause Chile's export supply of copper to exceed India's import demand for copper. This would put pressure on the price of copper to fall further away from  $TOT_1$ , not back to the  $TOT_1$  price.

23) Suppose that Chile is concerned about their domestic copper supply and puts a quota on its copper exports at the level of B denoted on Figure B4. Draw in the new offer curve for Chile, labeling it  $R_Q$ .

24) Suppose that the equilibrium terms of trade before Chile put the export quota in place was  $TOT_1$ . What will happen to the terms of trade from India's perspective once the Chilean export quota is put in to place (worsen, improve, or stay the same)? Worsen.

25) Continue to suppose that the equilibrium terms of trade before Chile put the export quota in place was  $TOT_1$ . What will happen to the level of rice imports for Chile once the export quota is put in to place (decrease, increase, or stay the same)? Increase.

**NEW TRADE THEORY QUESTIONS. Questions 26-28. (6 points each)**



26) The average cost curve for a representative monopolistically competitive firm in “new trade theory” (as shown in figure 1) displays increasing (increasing or decreasing) returns?

27) Suppose the same economy could choose whether firms should operate at point A or point B on their average cost curve.

Which point would be associated with more varieties and why?

Point A. Each firm is producing less output at A, which means there are more firms (and hence more varieties) in the economy for a given amount of labor.

Which point would be associated with lower prices and why?

Point B because in equilibrium the price charged by the firms is equal to the average cost which is lower at B.

28) Suppose that in long-run equilibrium, the firm ends up operating at point A on its average cost curve. In figure 1, draw in the firm’s residual demand curve and marginal revenue curve that would occur in the long-run at point A.

Label the demand curve with a D and the marginal revenue curve with a MR. Also, note the price charged (P) and quantity produced (Q) by the firm. Indicate how much profit the firm would make.

The firm would make zero economic profit

**HECKSCHER-OHLIN MODEL. Questions 29-32. (6 points each)**

Suppose there are only two countries in the world: the United States and Mexico. There are two goods, Pajamas (P) and Beer (B) which are produced in both countries using capital (K) and labor (L). In both countries, it takes 2 units of labor and 1 units of capital to make one set of Pajamas. In both countries, it takes 1 unit of labor and 5 units of capital to make pair of Beer. The United States has 50 units of labor and 40 units of capital, while Mexico has 40 units of labor and 20 units of capital. In summary, we have the following information in notation I used in class:

<u>U.S.:</u>	$a_{LP} = 2$	$L = 50$	<u>Mexico:</u>	$a_{LP}^* = 2$	$L^* = 40$
	$a_{KP} = 4$	$K = 40$		$a_{KP}^* = 4$	$K^* = 20$
	$a_{LB} = 1$			$a_{LB}^* = 1$	
	$a_{KB} = 3$			$a_{KB}^* = 3$	

29) Given the information above, show which product is capital intensive relative to the other product.

Beer is relatively capital intensive because the ratio of capital to labor to produce 1 unit is greater than for Pajamas:

$$\frac{a_{KB}}{a_{LB}} = \frac{3}{1} > \frac{4}{2} = \frac{a_{KP}}{a_{LP}}$$

30) According to the Heckscher-Ohlin theorem, which product will the U.S. export and which product will Mexico export and why?

The U.S. is relatively capital abundant since  $\frac{K}{L} = \frac{40}{50} > \frac{20}{40} = \frac{K^*}{L^*}$

Therefore, by the H-O Theorem, the U.S. will export the relatively capital intensive product, Beer, while Mexico (relatively labor abundant) will export the labor-intensive good, Pajamas.

31) Suppose that the price of Pajamas is \$32 and the price of Beer is \$21. Solve for the wage (w) and rental rate on capital (r) in the United States (hint: use the two equations that show that unit costs must equal prices; that is, the zero profit conditions)

Pajamas : (1)  $a_{LP} \cdot w + a_{KP} \cdot r = P_P$   
 Beer : (2)  $a_{LB} \cdot w + a_{KB} \cdot r = P_B$

Sub in values (1)  $2w + 4r = 32$

(2)  $w + 3r = 21$

From (2) : (2')  $w = 21 - 3r$

Sub into (1) :  $2(21 - 3r) + 4r = 32$

solving:  $42 - 6r + 4r = 32$   
 $-2r = -10$   
 $r = 5$

Sub  $r=5$  into (2)

$w = 21 - (3 \times 5)$   
 $w = 6$

**HECKSCHER-OHLIN MODEL continued. Continue using the following information to answer questions 25-28. (Total points: 26)**

U.S.:  $a_{LP} = 2$   
 $a_{KP} = 4$   
 $a_{LB} = 1$   
 $a_{KB} = 3$

$L = 50$   
 $K = 40$

Mexico:

$a_{LP}^* = 2$        $L^* = 40$   
 $a_{KP}^* = 4$        $K^* = 20$   
 $a_{LB}^* = 1$   
 $a_{KB}^* = 3$

32) Suppose that there is a technology improvement and the capital requirement to produce one unit of Beer falls from 3 to 1 in both countries. Would comparative advantage change in this model? Explain in detail why or why not.

Comparative advantage would change because now Pajamas, not Beer, is the capital-intensive good:

$$\frac{a_{KP}}{a_{LP}} = \frac{4}{2} > \frac{1}{1} = \frac{a_{KB}}{a_{LB}}$$

Thus, the U.S. (the capital-abundant country) would have the comparative advantage in Pajamas, while Mexico would have the comparative advantage in Beer.