

**Economics 433: Advanced International Trade**

**First Midterm Exam**

October 5, 2006

Please print name \_\_\_\_\_ **answer key** \_\_\_\_\_

Student ID \_\_\_\_\_

Please answer all questions on this exam. Each section will be weighted in proportion to its allotted time. Be sure to read the questions carefully, and provide concise explanations when then are solicited.

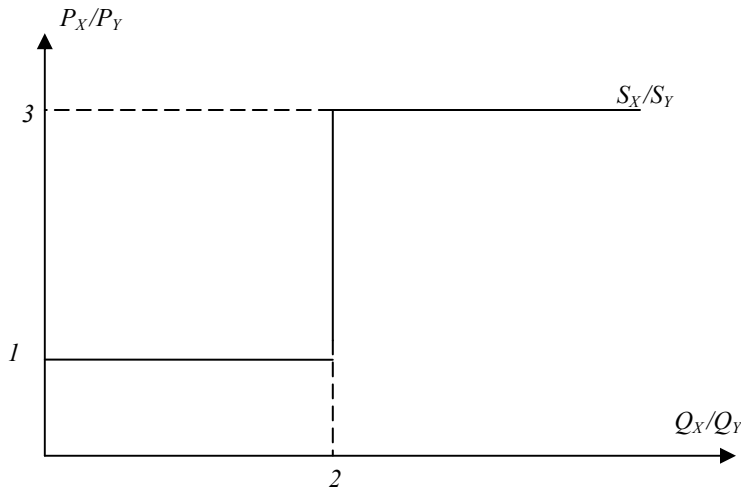
**Part I: Multiple Choice (20 minutes)**

1. Which of the following statements regarding world trade and foreign direct investment (FDI) since 1970 is incorrect?
  - a. Global FDI has been growing relative to global production.
  - b. Global trade has been growing relative to global production.
  - c. Global trade in final goods has been growing relative to global trade in intermediate goods.**
  - d. Global trade in manufactured goods has been growing more rapidly than global trade in agricultural goods.
  
2. Which of the following statements concerning the United States current account deficit is correct?
  - a. The current account deficit reflects the fact that the United States is using more goods and services than it is producing.**
  - b. Expressed as a percentage of GDP, the current account deficit has remained stable since the year 2000.
  - c. The large current account deficit implies that U.S. investors are acquiring foreign financial assets at a rate that far outpaces foreign acquisitions of U.S. financial assets.
  - d. The current account deficit could be improved if the private sector could be induced to save less.
  
3. Which of the following best summarizes the post-World War II behavior of the global price of primary products relative to the global price of manufactured products?
  - a. The relative price of primary products generally fell.
  - b. The relative price of primary products generally rose.
  - c. While there were fluctuations, the relative price of primary products did not show a clear long run tendency to rise or fall.**
  - d. The relative price of primary products remained very stable.
  
4. Suppose a country can produce cows and/or corn. It does so using three parcels of land, each differing in its ability to supply these goods. The table below summarizes production possibilities on each parcel. (For example, parcel A can produce 1 cow *or* 3 bushels of corn.) If the price of cows relative to bushels of corn is  $P_{cow}/P_{corn} = 2$ , then

<i>Parcel</i>	<i>Cows or</i>	<i>Bushels of corn</i>
A	1	3
B	2	2
C	3	1

- a. All parcels will be devoted to cow production.
- b. Only parcels A and B will be devoted to cow production.
- c. Only parcel A will be devoted to cow production.
- d. Only parcel C will be devoted to cow production.
- e. Only parcels B and C will be devoted to cow production.**

5. The graph below depicts the global relative supply of good X. It presumes a two-country, two-good world with Ricardian production technologies.

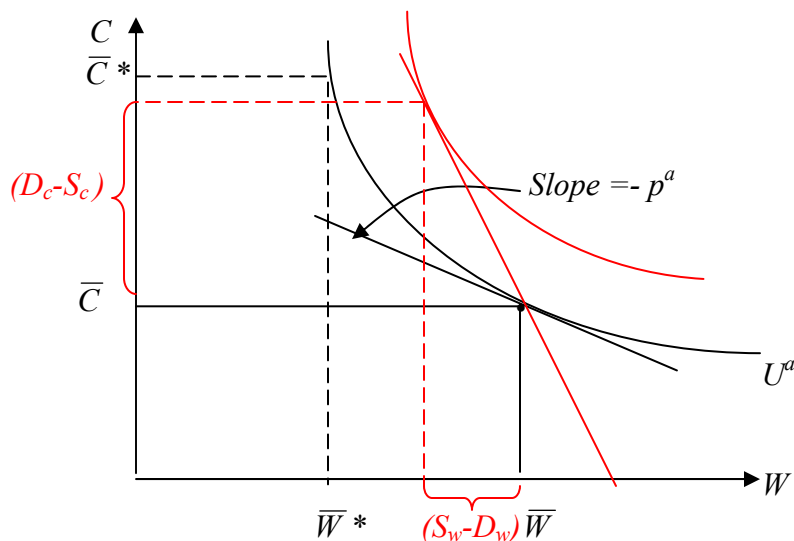


In the country that exports X, the amount of labor required to produce a unit of X is:

- one-third the amount of labor required to produce a unit of Y.
  - the same as the amount of labor required to produce a unit of Y.**
  - twice times the amount of labor required to produce a unit of Y.
  - three times the amount of labor required to produce a unit of Y.
6. Which of the following conditions is not necessary for an economy to be in competitive equilibrium?
- Producers must be paying each factor the value of its marginal product.
  - The marginal rate of transformation (MRT) between goods on the production possibility frontier,  $-dY/dX$ , must match the ratio of relative good prices,  $P_X/P_Y$ .
  - The marginal rate of substitution between goods at the consumption point must match the ratio of relative goods prices.
  - Capitalists and workers must be equally well off.**
7. Consider a Ricardian model with two identical countries and two goods. If the production of good Y is subject to sector-wide increasing returns to scale, and the production of good X is subject to sector-wide constant returns to scale:
- Opening to trade will hurt any country that increases its production of good Y.
  - Opening to trade will hurt any country that is driven out of Y production.
  - Opening to trade will not affect either country because, being identical, they have nothing to gain from trade.
  - Opening to trade will help both countries unless both continue to produce Y.**
8. When President Jefferson imposed a trade embargo during the Napoleonic wars,
- the prices of commodities imported by the U.S. rapidly rose.**
  - the prices of U.S. export commodities rose in response.
  - the volume of exports fell off, but imports remained stable.
  - the damage to the U.S. economy amounted to roughly 30 percent of GDP.

**Part II: Problems (55 minutes)**

1. **(20 minutes)** Consider a country (Redland) in which the population consists of two groups: farmers, who produce a fixed amount of wheat ( $W$ ), and weavers, who produce a fixed amount of ( $C$ ) cloth. Given that there are no substitution possibilities between these two goods, the production point is fixed at  $(\bar{C}, \bar{W})$  as drawn below. Also depicted are the community indifference curve that passes through the production point, labeled  $U^a$ , and the associated autarky price ratio,  $p^a$ . (Ignore point  $(\bar{C}^*, \bar{W}^*)$  for now):



- a) Suppose that Redland opens to trade, and that the relative price of wheat in global markets ( $p^*$ ) is *more* than the autarky price of wheat ( $p^a$ ).
- Depict the new budget line for Redland in the graph above. (Choose any  $p^* > p^a$  that you like.)
  - Identify a plausible new consumption point—label it  $C$ —and add a social indifference curve to your graph that is consistent with the point you choose.
  - Which good does Redland export in the new equilibrium? Wheat On your graph mark the distance that shows *how much* of this good is exported. (Label the amount exported  $S_w - D_w$  if wheat is exported; label it  $S_c - D_c$  if cloth is exported.) Similarly, mark the distance on your graph that indicates how much of the other good is imported. (Label this distance  $D_w - S_w$  if wheat is imported; label it  $D_c - S_c$  if cloth is imported.)

b) Forget about your answer to part *a*. Now imagine that Redland is one of two countries in the world—the other is Blueland. Both have cloth producers and wheat producers, and both have identical, homothetic tastes, but they have different capacities for production of the two goods. Specifically, Blueland's production point is  $(\bar{C}^*, \bar{W}^*)$ . (Coincidentally, Blueland's production point is also on the social indifference curve labeled  $U^a$ .)

iv) In autarky, which country has the higher relative price of wheat? \_\_\_\_\_  
(Redland, **Blueland**)

v) If Redland trades with Blueland, which country exports cloth? \_\_\_\_\_  
(Redland, **Blueland**)

vi) Indicate whether each of the following types of producers are better off or worse off after trade:

Farmers in Redland \_\_\_\_\_ (**better**, worse)

Farmers in Blueland \_\_\_\_\_ (better, **worse**)

Weavers in Redland \_\_\_\_\_ (better, **worse**)

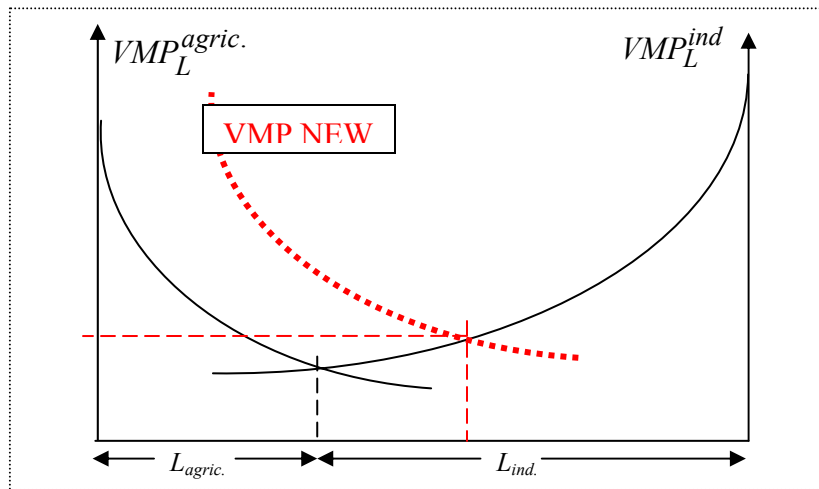
Weavers in Blueland \_\_\_\_\_ (**better**, worse)

iv) Within each country, would it be possible for the people who are better off to compensate those who are worse off in such a way that everyone gains from trade? \_\_\_\_\_ (**yes**, no) Briefly explain.

If, before trade, all individuals had been at the point on their initial budget line where they had the same *ratio* of cloth to wheat,  $\bar{C} / \bar{W}$ , all would have benefited from opening to trade. Hence there must be enough extra income after trade for the winners (wheat producers) to compensate the losers (cloth producers).

2. (15 minutes) The country of Agricola is characterized by the specific factors model. It produces industrial goods with capital and labor, and it produces agricultural goods with land and labor. Labor, capital and land are all in fixed supply and labor is mobile across sectors. There is a sudden, major improvement in fertilizing techniques that increases the amount of output attainable from each possible combination of labor and land.

- a) The graph below depicts labor market equilibrium in Agricola before the improvement in fertilizer techniques. Add a line to this graph that represents labor's value of the marginal product in agriculture ( $VMP_L^{agric.}$ ) after the improvement.

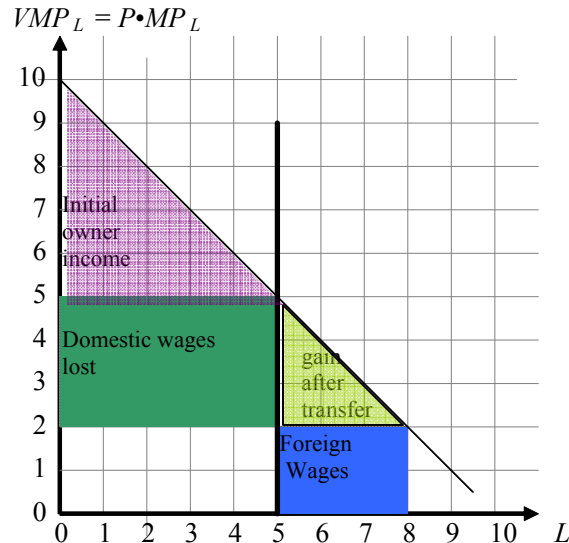


- b) Assume that Agricola trades freely with the rest of the world, it is too small to influence world prices, and fertilizing techniques do not change beyond Agricola's borders. How will this improvement in Agricola's technology affect Agricolan workers' welfare? (**improve**, worsen, no effect) \_\_\_\_\_. How will it affect the welfare of those who own the capital stock in Agricola (improve, **worsen**, no effect) \_\_\_\_\_. Rigorously defend your answer.

Wages will increase relative to the prices of both goods (which will remain unchanged). Furthermore, workers will leave the industrial sector and move towards the agricultural sector, lowering the MP of capital. Thus  $r / P_I = MP_K$  must fall, and since  $P_I$  will not change, this implies that  $r$  must fall, making capital owners worse off.

- c) If Agricola were large enough to influence world prices, how would Agricola's terms of trade have been affected by its improvement in fertilizer techniques? (**deteriorate**, improve, no change) \_\_\_\_\_. Might Agricola have experienced immiserizing growth (**yes**, no) \_\_\_\_\_. Briefly explain.

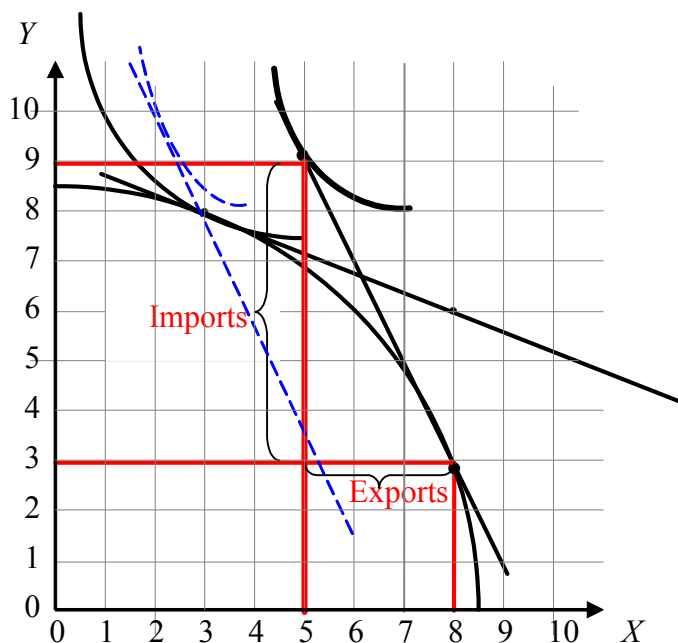
3. (10 minutes) At harvest time, the value of the marginal product of pear pickers in the United States is as depicted below:



- a) Suppose the domestic supply of pear pickers is fixed at  $L = 5$  and no migrant workers are allowed into the country. What is the market wage rate for pickers? 5 How much income do the pear pickers earn? 25 How much income do the orchard owners earn? 12.5
- b) If the border were decontrolled, and a perfectly elastic supply of foreign migrant workers were available at a wage of \$2, how much would orchard owners earn? 32 How much would domestic pickers earn, assuming that they drop their wage to match the \$2 migrant wage? 10 If the orchard owners were required to exactly compensate the domestic pear pickers for the income they lose when the border is decontrolled, how much would they have to pay them? 15 If the law required that such compensation be made, would the owners still be in favor of border decontrol? (yes, no) yes Briefly explain.

Owners make 19.5 (derived from  $32 - 12.5$ ), and with no border control they would have to compensate domestic labor 15 for lost wages. Owners would be left with  $19.5 - 15 = 4.5$  (gain after transfer), so owners would still be in favor of border decontrol if compensation were required.

4. (10 minutes) Consider the diagram below depicting the autarky equilibrium and the trading equilibrium for the small country of Examistan:



Although it may not be obvious, tangency points in this graph occur at  $(X=3, Y=8)$ ,  $(X=8, Y=3)$ , and  $(X=5, Y=9)$ .

- a. What is the relative price of  $X$  in world markets?  $P_X/P_Y = \underline{2}$ . Is this relative price *higher* or *lower* than the relative price that would prevail in Examistan if it were to isolate itself from trade? higher In the trading equilibrium, which good does Examistan export? ( $X$ ,  $Y$ )  $X$  How much of this good does it export? 3 How much of the other good does it import? 6
- b. If it were to go from autarky to free trade, would Examistan enjoy gains from specialization, gains from exchange, or both? both Briefly defend your answer.

Gains from specialization occur because Examistan moves its production away from good  $Y$  toward good  $X$ , thereby shifting the economy's budget line outward.

Gains from exchange occur because, even if the production point had not move, consumers would have reached a higher indifference curve by substituting good  $Y$  for good  $X$  (refer to blue dotted budget line and indifference curve).