# Midterm Exam
# International Trade

Instructor: Biwei Chen
3:00-5:30 PM March 31

**Please read this page carefully before you start. I expect you to follow all the instructions. Any cheating during exams will result in your failing the course and the matter being reported to the dean. Violating any of these instructions may also cost you several points!**

This exam is open-book. However, discussion on questions (or related topics) and item exchange between students are NOT allowed during the exam hours (except discussion with me). The definition of the honor code for this course: "I affirm that I will not plagiarize, use unauthorized materials, or give or receive illegitimate help during this examination. I will also uphold equity and honesty in the evaluation of my work and the work of others. I do so to sustain a community built around this Code of Honor."

Turn in your solutions (either in class or email it to bichen@barnard.edu and mjaimesb@barnard.edu if you cannot come to the class) at 2:40PM on Monday, April 1. To be fair to all students, for every 1 minute of delay I will take 1 point off from your grade. Therefore, I suggest you account for random events (e.g., traffic delays, internet issues, server delays) and turn in your solution in time.

If you email me your solution, it is your responsibility to make sure that it is readable after I print your solution with a black and white printer. *The subject of the email must be BC3047 Midterm: Name*. Furthermore, I expect you to send me only one file (pdf is preferred). In case I receive multiple files, I will penalize you 5 points. Also, make sure your name is on the first page of the file. Once you email your solution, for every revision or resubmission, I will penalize you 5 points. Please double-check everything and send me the final version.

To avoid confusion of the graders for essay questions, make sure write your solutions as clean as possible. Depending on the neatness of your response sheet, you may be rewarded up to 5 extra points. The more time I spend on your exam, the less extra point you will get. Hence, if you do not know the answer to one of the essay questions, leave it blank. If you get stuck in the middle of the solution honestly mention it. Otherwise, you will lose this extra credit. If you have any problem regarding the questions, feel free to email me. If you email your question after 10:00PM on Sunday, there is a chance that you will not get any response until 9:00 AM Monday. Except that, I hope to answer your questions within 30 minutes of the time I receive them. Best of luck!

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**I. Multiple Choice: Choose the best answer and fill in the table on page 7. (25*2=50 points)**

1. Which of the following statements is true?
   A.  Countries tend to trade extensively with their neighbors.
   B.  The United States is an important trading partner for many countries.
   C.  The largest amount of international trade occurs between industrialized countries.
   D.  All of the above are true.

2. What is the effect on trade deficits of a country's saving rate?
   A.  A low savings rate means that consumers are buying more, and more buying leads to an increase in a country's trade deficit.
   B.  A low savings rate means that people are spending more than they earn and that results in increased financial difficulties for consumers, higher interest rate, and fewer international sales, resulting in a decrease in a country's trade deficit.
   C.  A high savings rate means that there is more money available for investment which results in greater production and increased international sales which lead to lower trade deficits.
   D.  A country's savings rate has no effect on the country's trade deficit.

3. Which of the following is true of mercantilism?
   a.  Mercantilists believed that free trade is always beneficial for the trading nations.
   b.  Mercantilists believed that under free trade each of the trading countries benefit equally.
   c.  Mercantilists believed that a nation does not benefit directly from its exports.
   d.  Mercantilism believed that national well-being was based on national holdings of gold and silver.

4. According to the Mercantilists, governments should:
   a.  subsidize and encourage imports.
   b.  subsidize and encourage exports.
   c.  allow for free trade unencumbered by government regulations and restrictions.
   d.  not spend much on national defense.

5. The table given below shows the number of labor hours required to produce 1 umbrella and 1 bushel of corn in the U.K. and the Rest of the World. The United Kingdom has an absolute advantage in the production of _____.

| Labor hours to make: | In the United Kingdom | In the Rest of the World |
|---|---|---|
| 1 umbrella | 3.00 | 2.00 |
| 1 bushel of corn | 1.00 | 0.25 |

   A. neither corn nor umbrella
   B. both corn and umbrella
   C. only corn
   D. only umbrella

6. If a country exports the products that it can produce at a low opportunity cost and imports the products that it would otherwise produce at a high opportunity cost, we say that such trade is based on:
   A. the theory of absolute advantage.
   B. the arbitrage pricing theory.
   C. theory of factor endowments.
   D. the theory of comparative advantage.

7. The table given below shows the number of labor hours required to produce 1 gallon of wine and 1 pound of cheese in the U.S. and France. If the U.S. and France engage in free trade with each other, the international price of wine will lie between _____ and _____.

| Labor hours to make: | In the United States | In France |
|---|---|---|
| 1 gallon of wine | 4.00 | 1.00 |
| 1 pound of cheese | 1.00 | 2.00 |

   A. 1 pound of cheese per gallon; 4 pounds of cheese per gallon
   B. 0.5 pounds of cheese per gallon; 4 pounds of cheese per gallon
   C. 1 pound of cheese per gallon; 2 pounds of cheese per gallon
   D. 0.5 pounds of cheese per gallon; 2 pounds of cheese per gallon

8. In the figure given below AB is the production-possibility curve of Canada. The line PQ shows the price ratio of 1 bushel of wheat/bale of cotton. The international price ratio is 0.25 bushels of wheat/bale of cotton as shown by the line RS. $I_1$ and $I_2$ are two of the community indifference curves of Canada. After Canada engages in free trade, it will import:
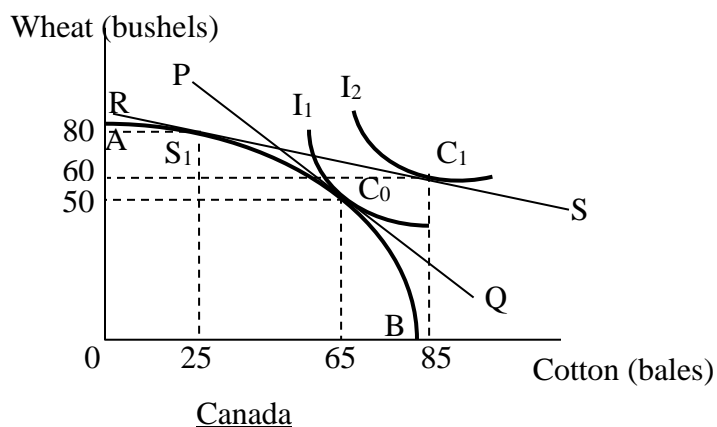


Canada

A. 60 bales of cotton.
B. 40 bales of cotton.
C. 20 bushels of wheat.
D. 80 bushels of wheat.

9. The figure given below shows the production-possibility curves of Canada (AB) and the Rest of the World (CD). The international price ratio faced by the countries is represented by the line $P_2$. $I_1$ and $I_2$ are community indifference curves for Canada and the Rest of the World. In the shift from no trade to free trade, cotton production in the world increases by _____ bale(s) and wheat production increases by _____ bushel(s).



Canada                                          Rest of the World
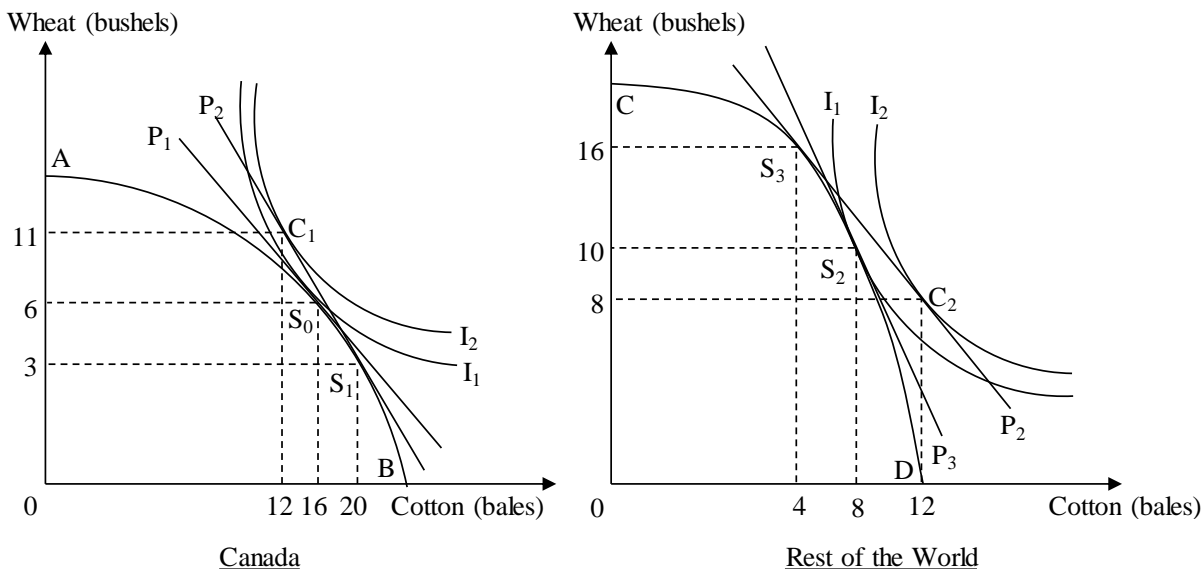
A. 0; 3
B. 0; 1
C. 24; 19
D. 1; 0

10. In the short-run, following the opening of trade:
    A. workers in the country can change jobs but will receive the same wage.
    B. workers will suffer from lower wages but land owners will benefit from higher rents.
    C. all groups tied to declining sectors of the economy will suffer from lower returns.
    D. gross output remains constant.

11. The following input-requirements data are for country A, a capital-abundant country where they produce nothing but bread and wine using only capital and labor as inputs. According to H-O theory, country A has a comparative advantage in the production of:

|               | 1 pound of bread | 1 gallon of wine |
|---------------|------------------|------------------|
| Capital input | 5 units          | 20 units         |
| Labor input   | 4 units          | 10 units         |

    A. both bread and wine.
    B. neither bread nor wine.
    C. wine.
    D. bread.

12. Suppose country A, a labor-abundant country, produces only wheat and cloth. The following equations illustrate the prices and costs of wheat and cloth in the country, where the numbers indicate the amounts of labor and land needed to produce a unit of wheat and cloth. 'w' is the wage rate and 'r' is the rental rate of land. Price of wheat = 1w + 2r and Price of cloth = 2w + 1r. Suppose country A engages in free trade and the price of cloth increases from \$3 per unit to \$4 per unit. The price of wheat remains unchanged at \$3 per unit. The wage rate and the rental rate change to \_\_\_\_\_ and \_\_\_\_\_ respectively.
    A. \$3/8; \$7/8
    B. \$1; \$5/3
    C. \$5/3; \$2/3
    D. \$4/7; \$3/7

13. China has 20% of the world's population and 10% of the world's farmable land. Which of the following will be predicted by the Heckscher-Ohlin theory, if China begins to trade with other countries?
    A. China will export land-intensive goods like wheat and import labor-intensive goods like clothing.
    B. China will shift resources into the production of agricultural goods and away from manufactured goods.
    C. China will shift resources from the production of agricultural goods to the production of labor-intensive goods.
    D. China will export capital-intensive goods like automobiles and import labor-intensive goods like clothing.

14. The HO model predicts that
    A. countries with different factor endowments but similar technologies and preferences will have a strong basis for trade with each other.
    B. countries will tend to specialize, but not completely, in their comparative advantage good.
    C. reciprocal demand leads to an equilibrium terms of trade by inducing changes in both demand and supply.
    D. All of the above.

15. If trade corresponds to the Heckscher-Ohlin theory, which of the following is most likely to happen in the long run after a labor-abundant country engages in free trade?
    A. The rate of unemployment in the country is most likely to increase.
    B. The total output in the economy will decline.
    C. The capital to labor ratio in the export sector will increase.
    D. The rental rates of capital will increase but the wage rates will decline.

16. Let us assume that cloth-making (labor-intensive) and farming (land-intensive) are the only two sectors of production in a country. If this country is labor-abundant, and if trade corresponds to the Heckscher-Ohlin theory, which of the following groups will gain in the short-run, but lose in the long-run, from the opening of trade?
  A. Domestic landowners in the farming sector
  B. Domestic landowners in the cloth-making sector
  C. Foreign landowners in the farming sector
  D. Foreign workers in the cloth-making sector

17. According to the factor price equalization theorem, if country B is labor abundant, then if country B initiates trade with country A
  A. wages and rents should fall in A.
  B. rents and rents should rise in A.
  C. wages should rise and rents should fall in A.
  D. wages should fall and rents should rise in A.

18. Leontief's results were considered paradoxical because the United States was believed to be
  A. technologically efficient relative to the rest of the world.
  B. capital abundant relative to the rest of the world.
  C. labor abundant relative to the rest of the world.
  D. All of the above.

19. Leontief reconciled his results by arguing that
A) American labor is more efficient than foreign.
B) American capital is more efficient than foreign.
C) Foreign capital is more efficient than American.
D) Foreign labor is more efficient than American.

20. A problem with Leontief's methodology is that
  A. he had no information on U.S. and foreign factor endowments.
  B. he did not use information on foreign factor intensities.
  C. he ignored the roles of other factors of production such as natural resources.
  D. All of the above are problems.

21. Intraindustry trade can be explained in part by
  A. transportation costs within and between countries.
  B. problems of data aggregation and categorization.
  C. increasing returns to scale.
  D. All of the above.

22. If some industries exhibit increasing returns to scale in each country, we should not expect to see
  A. intraindustry trade between countries.
  B. perfect competition in these industries.
  C. interindustry trade between countries.
  D. Either B or C.

23. Suppose the amount of exports of textile machinery from Italy to the rest of the world equals 60 billion tons. The amount of imports of textile machinery into Italy from the rest of the world is 40 billion tons. Therefore, the intra-industry trade share for machinery is:
   A. 0.2.
   B. 0.8.
   C. 1.5.
   D. 0.67.

24. Which of the following is NOT an effect of intra-industry trade, if the concerned industry is monopolistically competitive?
   A. There are considerable national gains that arise from trade because there is an increase in the number of varieties of products available in the country.
   B. Domestic consumers gain because such trade results in lower prices of domestic varieties of the good.
   C. Total output of the domestic firms in the industry increases as a result of such trade.
   D. There are few shifts in production between industries that put pressures on factor prices.

25. The _____ posits that trade flows between countries will be larger as the economic sizes of the two countries are larger and the geographic distance between the two countries is smaller.
   A. Heckscher-Ohlin model
   B. theory of absolute advantage
   C. gravity model
   D. Stolper-Samuelson theorem

Please fill in your answers in the table:

| 1-5 | |
|-------|---|
| 6-10 | |
| 11-15 | |
| 16-20 | |
| 21-25 | |

**Name:**

**UNI:**

**II. Analytical Short Answer Questions** (10+20+20=50 points)

1. In Ricardian models, if linear production possibility frontier (PPF) is assumed, complete specialization would be implied in trade equilibrium. In reality, however, it is almost impossible to observe a country specialize in producing only one good - other goods are more or less being produced even though no comparative advantage in such goods. Based on various shapes of the PPF and their underlying determinants, how do you explain the phenomenon of production diversification in the real world?

2. Suppose that computers use 4 units of capital for each worker, so that $K_C = 4 \cdot L_C$, whereas shoes use 0.2 units of capital for each worker, so that $K_S = 0.2 \cdot L_S$. There are 200 workers and 200 units of capital in the economy.
   1) Solve for the amount of labor and capital used in each industry.
   2) Suppose that the number of workers increases to 250 because of immigration, keeping total capital fixed at 200. Again, solve for the amount of labor and capital used in each industry.
   3) Suppose instead that the amount of capital increases to 250 due FDI, keeping the total number of workers fixed at 200. Again, solve for the amount of labor and capital used in each industry.
   4) Explain how your results in parts (2) and (3) are related to the Rybczynski theorem.

3. Starting from the long-run equilibrium without trade in the monopolistic competition model, as illustrated in the graph below, consider what happens when the Home country begins trading with two other identical countries. Because the countries are all the same, the number of consumers in the world is three times larger than in a single country, and the number of firms in the world is three times larger than in a single country.
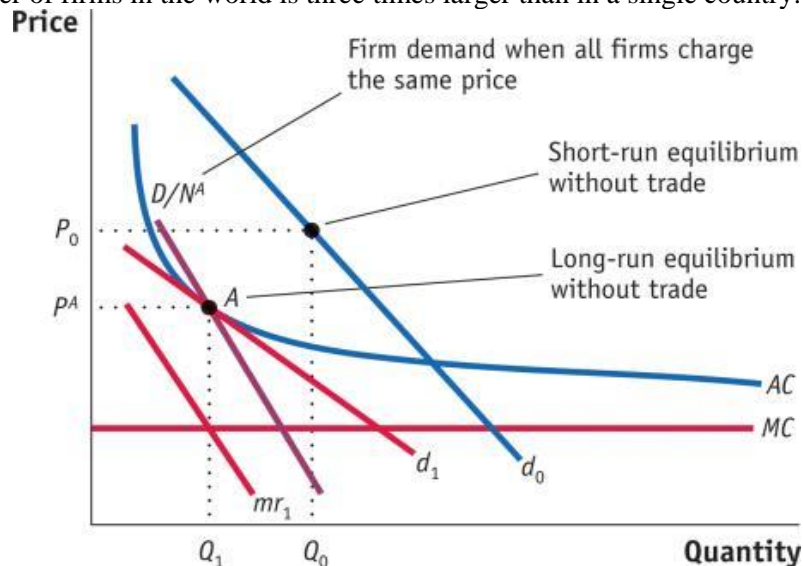


   1) Compared with the no-trade equilibrium, how much does industry demand D increase? How much does the number of firms (or product varieties) increase? Does the demand curve $D/N^A$ still apply after the opening of trade? Explain why or why not.
   2) Does the d1 curve shift or pivot due to the opening of trade? Explain why or why not. Compare your answer with the case in which Home trades with only one other identical country. Specifically, compare the elasticity of the demand curve d1 in the two cases.
   3) Illustrate the short-run equilibrium with trade, and compare it with the autarky equilibrium. Is there exit or entry of firms, and why?
   4) Illustrate the long-run equilibrium with trade, and compare it with the long-run equilibrium when Home trades with only one other identical country.

## Answer Sheet for Analytical Questions

**Name and UNI:**

**Answer Sheet for Analytical Questions**

**Name and UNI:**