

CHAPTER 2
*(Core Chapter)

THE LAW OF COMPARATIVE ADVANTAGE

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A2.2 Comparative Advantage with More than Two Nations

Key Terms

Basis for trade	Labor theory of value
Gains from trade	Opportunity cost theory
Pattern of trade	Production possibility frontier
Mercantilism	Constant opportunity cost
Absolute advantage	Relative commodity prices
Laissez-faire	Complete specialization
Law of comparative advantage	Small country case

Lecture Guide

1. This is a long and crucial core chapter and may require four classes to cover adequately. In the first lecture, I would present Sections 1, 2, and 3. These are short sections and set the stage for the crucial law of comparative advantage.
2. In the second lecture of Chapter 2, I would concentrate on Section 4 and carefully explain the law of comparative advantage using simple numerical examples as in the text. The crucial parts here are 4b (which explains the law) and 4d (which establishes the link between trade theory and international finance). I find that the numerical explanations before the graphical analysis really helps the student to truly understand the law. The simple lawyer-secretary example should also render the law more immediately relevant to the student. I would also assign Problems 1-6.
3. In the third lecture, I would cover Sections 2.5 and 2.6a. I would pay particular attention to Sections 2.5c, 2.5d, and 2.6, which are the heart of the chapter.
4. In the fourth lecture, I would cover the remainder of the chapter. The crucial section here is 2.6b and the most difficult concept to explain is the shape of the combined supply curve for wheat and cloth. The appendixes could be made optional for the more enterprising students in the class. I would also assign Problems 7-13.

Answer to Problems

1. In case A, the United States has an absolute advantage in wheat and the United Kingdom in cloth.

In case B, the United States has an absolute advantage (so that the United Kingdom has an absolute disadvantage) in both commodities.

In case C, the United States has an absolute advantage in wheat but has neither an absolute advantage nor disadvantage in cloth.

In case D, the United States has an absolute advantage over the United Kingdom in both commodities.

2. In case A, the United States has a comparative advantage in wheat and the United Kingdom in cloth.

In case B, the United States has a comparative advantage in wheat and the United Kingdom in cloth.

In case C, the United States has a comparative advantage in wheat and the United Kingdom in cloth.

In case D, the United States and the United Kingdom have a comparative advantage in neither commodities.

3. In case A, trade is possible based on absolute advantage.

In case B, trade is possible based on comparative advantage.

In case C, trade is possible based on comparative advantage.

In case D, no trade is possible because the absolute advantage that the United States has over the United Kingdom is the same in both commodities.

4. a) The United States gains 1C.
b) The United Kingdom gains 4C.
c) $3C < 4W < 8C$.
d) The United States would gain 3C while the United Kingdom would gain 2C.
- 5) a) The cost in terms of labor content of producing wheat is 1/4 in the United States and 1 in the United Kingdom, while the cost in terms of labor content of producing cloth is 1/3 in the United States and 1/2 in the United Kingdom.
b) In the United States, $P_w = \$1.50$ and $P_c = \$2.00$.
c) In the United Kingdom, $P_w = £1.00$ and $P_c = £0.50$.
- 6) a) With the exchange rate of $£1 = \$2$, $P_w = 2.00$ and $P_c = \$1.00$ in the United Kingdom, so that the United States would be able to export wheat to the United Kingdom and the United Kingdom would be able to export cloth to the United States.
b) With the exchange rate of $£1 = \$4$, $P_w = \$4.00$ and $P_c = \$2.00$ in the United Kingdom, so that the United States would be able to export wheat to the United Kingdom, but the United Kingdom would be unable to export any cloth to the United States.

- c) With $\text{£}1 = \$1$, $P_w = \$1.00$ and $P_c = \$0.50$ in the United Kingdom, so that the United Kingdom would be able to export both commodities to the United States.
- d) $\$1.50 < \text{£}1.00 < \4.00 .
7. a) See Figure 1.
- b) In the United States $P_w/P_c = 3/4$, while in the United Kingdom, $P_w/P_c = 2$.
- c) In the United States $P_c/P_w = 4/3$, while in the United Kingdom $P_c/P_w = 1/2$.
8. See Figure 2.
The autarky points are A and A' in the United States and the United Kingdom, respectively. The points of production with trade are B and B' in the United States and the United Kingdom, respectively. The points of consumption are E and E' in the United States and the United Kingdom, respectively. The gains from trade are shown by $E > A$ for the U.S. and $E' > A'$ for the U.K.
9. a) If $D_{W(US+UK)}$ shifted up in Figure 2.3, the equilibrium relative commodity price of wheat would also rise by $1/3$ to $P_w/P_c = 4/3$. Since the higher $D_{W(US+UK)}$ would still intersect the vertical portion of the $S_{W(US+UK)}$ curve, the United States would continue to specialize completely in the production of wheat and produce 180W, while the United Kingdom would continue to specialize completely in the production of cloth and produce 120C.
- b) Since the equilibrium relative commodity price of cloth is the inverse of the relative commodity price of wheat, if the latter rises to $4/3$, then the former falls to $3/4$. This means that $D_{C(UK+US)}$ shifts down by $1/3$ in the right panel of Figure 2.3.

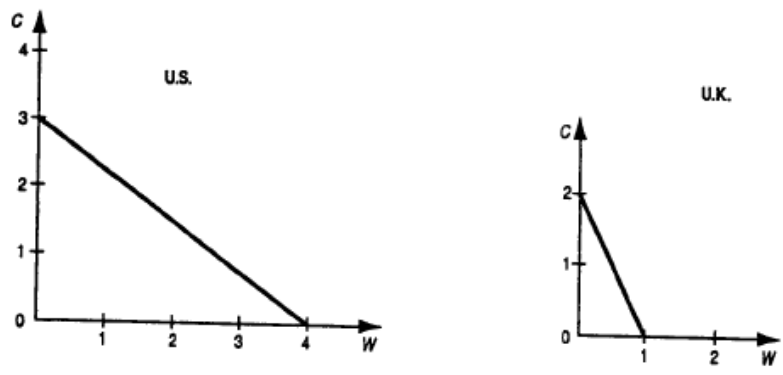


Figure 1

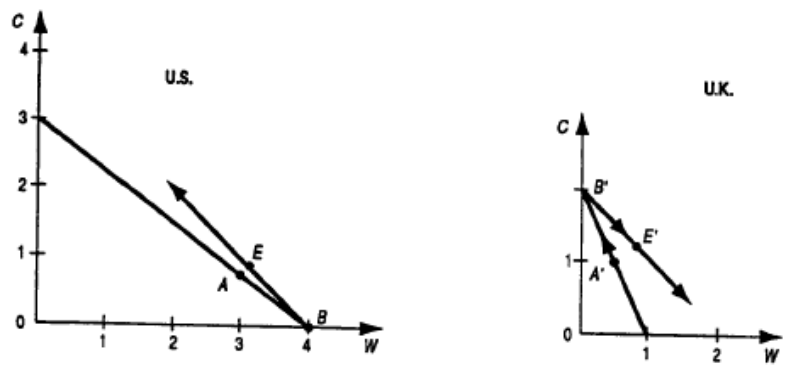


Figure 2

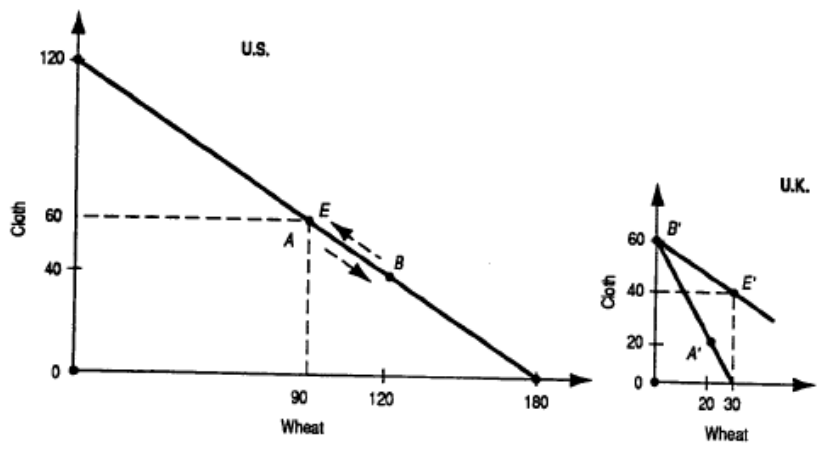


Figure 3

10. If $D_{W(US+UK)}$ intersected $S_{W(US+UK)}$ at $P_W/P_C=2/3$ and $120W$ in the left panel of Figure 2.3, this would mean that the United States would not be specializing completely in the production of wheat.

The United Kingdom, on the other hand, would be specializing completely in the production of cloth and exchanging $20C$ for $30W$ with the United States. Since the United Kingdom trades at U.S. the pre-trade relative commodity price of $P_W/P_C=2/3$ in the United States, the United Kingdom receives all of the gains from trade.

11. See Figure 3 on page 15 and the discussion in the last paragraph of Section 2.6b in the text.
12. a) The Ricardian model was tested empirically by showing the positive correlation between relative productivities and the ratio of U.S. to U.K. exports to third countries and by the negative correlation between relative unit labor costs and relative exports
- b) The Ricardian trade model was confirmed by the positive relationship found between the relative labor productivity and the ratio of U.S. to U.K. exports to third countries, as well as by the negative relationship between relative unit labor costs and relative exports.
- c) Even though the Ricardian model was more or less empirically confirmed we still need other models because the former assumes rather than explains comparative advantage (i.e, it does not explain the reason for the different labor productivities in different nations) and cannot say much regarding the effect of international trade on the earnings of factors of production.
- d) The United States has a comparative disadvantage in the production of textiles. Restricting textile imports would keep U.S. workers from eventually moving into industries in which the United States has a comparative advantage and in which wages are higher.

Answer to Problem in Appendix 2

The numbers in the following table refer to the cost or price of commodities X, Y, and Z in nations A, B, and C in terms of the same currency. Thus, nation A exports commodity X to nations B and C; nation B exports commodity Y to nations A and C; nation C exports commodity Z to nations A and B.

		Nation		
		A	B	C
Commodity	X	1	2	3
	Y	3	1.5	2
	Z	4	3	2

Multiple-Choice Questions

1. The Mercantilists did not advocate:

- *a. free trade
- b. stimulating the nation's exports
- c. restricting the nations' imports
- d. the accumulation of gold by the nation

2. According to Adam Smith, international trade was based on:

- *a. absolute advantage
- b. comparative advantage
- c. both absolute and comparative advantage
- d. neither absolute nor comparative advantage

3. What proportion of international trade is based on absolute advantage?

- a. All
- b. most
- *c. some
- d. none

4. The commodity in which the nation has the smallest absolute disadvantage is the commodity of its:

- a. absolute disadvantage
- b. absolute advantage
- c. comparative disadvantage
- *d. comparative advantage

5. If in a two-nation (A and B), two-commodity (X and Y) world, it is established that nation A has a comparative advantage in commodity X, then nation B must have:

- a. an absolute advantage in commodity Y
- b. an absolute disadvantage in commodity Y
- c. a comparative disadvantage in commodity Y
- *d. a comparative advantage in commodity Y

6. If with one hour of labor time nation A can produce either 3X or 3Y while nation B can produce either 1X or 3Y (and labor is the only input):

- a. nation A has a comparative disadvantage in commodity X
- b. nation B has a comparative disadvantage in commodity Y
- *c. nation A has a comparative advantage in commodity X
- d. nation A has a comparative advantage in neither commodity

7. With reference to the statement in Question 6:

- a. $P_x/P_y=1$ in nation A
- b. $P_x/P_y=3$ in nation B
- c. $P_y/P_x=1/3$ in nation B
- *d. all of the above

8. With reference to the statement in Question 6, if 3X is exchanged for 3Y:

- a. nation A gains 2X
- *b. nation B gains 6Y
- c. nation A gains 3Y
- d. nation B gains 3Y

9. With reference to the statement of Question 6, the range of mutually beneficial trade between nation A and B is:

- a. $3Y < 3X < 5Y$
- b. $5Y < 3X < 9Y$
- *c. $3Y < 3X < 9Y$
- d. $1Y < 3X < 3Y$

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10. If domestically $3X=3Y$ in nation A, while $1X=1Y$ domestically in nation B:
- a. there will be no trade between the two nations
 - b. the relative price of X is the same in both nations
 - c. the relative price of Y is the same in both nations
 - *d. all of the above
11. Ricardo explained the law of comparative advantage on the basis of:
- *a. the labor theory of value
 - b. the opportunity cost theory
 - c. the law of diminishing returns
 - d. all of the above
12. Which of the following statements is true?
- a. The combined demand for each commodity by the two nations is negatively sloped
 - b. the combined supply for each commodity by the two nations is rising stepwise
 - c. the equilibrium relative commodity price for each commodity with trade is given by the intersection of the demand and supply of each commodity by the two nations
 - *d. all of the above
13. A difference in relative commodity prices between two nations can be based upon a difference in:
- a. factor endowments
 - b. technology
 - c. tastes
 - *d. all of the above
14. In the trade between a small and a large nation:
- a. the large nation is likely to receive all of the gains from trade
 - *b. the small nation is likely to receive all of the gains from trade
 - c. the gains from trade are likely to be equally shared
 - d. we cannot say
15. The Ricardian trade model has been empirically
- *a. verified
 - b. rejected
 - c. not tested
 - d. tested but the results were inconclusive