CHAPTER 1
THE WORLD OF INTERNATIONAL ECONOMICS

I. Outline

Introduction
The Nature of Merchandise Trade
   - The Geographical Composition of Trade
   - The Commodity Composition of Trade
   - U.S. International Trade
World Trade in Services
The Changing Degree of Economic Interdependence
Summary
Appendix: A General Reference List in International Economics

II. Purpose of Chapter

The purpose of this introductory chapter is to provide the student with an overview of the current nature of international trade in goods and services for the world in general and for the United States in particular. It is useful to make the student aware not only of the broad nature of international transactions, but also of the increased international interdependence that now characterizes the world economy. Although this chapter contains a great amount of “data,” we have found that discussing this kind of information on the first day of class motivates student interest in the subject and in the course in general.
CHAPTER 2
EARLY TRADE THEORIES: Mercantilism and the Transition
to the Classical World of David Ricardo

I. Outline

Introduction
Mercantilism
  - The Mercantilist Economic System
  - The Role of Government
  - Mercantilism and Domestic Economic Policy
The Challenge to Mercantilism by Early Classical Writers
  - David Hume - The Price-Specie-Flow Mechanism
  - Adam Smith and the Invisible Hand
Summary

II. Special Chapter Features

Case Study 1: The Gephardt Amendment - The New Mercantilism?
Box 1: Capsule Summary of the Price-Specie-Flow Mechanism
Box 2: Concept Review - Price Elasticity and Total Expenditures
Box 3: Adam Smith (1723-1790)

III. Purpose of Chapter

The purpose of this chapter is to trace out some of the early ideas regarding the basis for international trade and the distribution of the benefits to be gained from trade. It not only provides some historical perspective to trade theory, but it also makes clear why certain contemporary protectionist attitudes can be seen as being based in a Mercantilist view of the world.

IV. Answers to End-of-Chapter Questions and Problems

1. Wealth was viewed as synonymous with holdings of precious metals. Nation-states wished to become wealthy and this meant obtaining large holdings of precious metals. It is also argued by some that the shortage of coinage constrained the growth of these nation-states and that precious metals were required to increase the supply of coinage (money) in order for the countries to grow.

2. Critical pillars of Mercantilism:
   a. the zero-sum nature of international trade;
   b. the need for strong, powerful governments;
c. the labor theory of value;
d. the need to regulate economic activity;
e. the need for a positive trade balance.

Because wealth was viewed in terms of holdings of precious metals, the objective of economic activity and policy was to foster increased holdings of specie. Mercantilists believed that individuals pursuing their own self interest would not accomplish this objective and that consequently, economic activity had to be closely regulated and supervised.

3. The paradox of Mercantilism is that wealthy countries would contain large numbers of very poor people. A second paradox is that wealthy countries had to spend great amounts of specie to protect their holdings of specie. Wages were kept low (at institutional subsistence levels) to reduce labor costs, and families were encouraged to have children through various taxes and subsidies. These actions contributed to a very large poor working class.

4. Critical assumptions of the price-specie-flow mechanism:
   a. some link between the money supply and the price level, e.g., the quantity theory of money;
   b. perfect competition, with flexible wages and prices;
   c. price-elastic demand for traded goods;
   d. existence of a gold standard, with no government interference with the movement of gold and no actions to sterilize gold’s impact on the money supply.

If the demand for traded goods were price-inelastic, the movement of gold and prices would worsen trade balances, not correct them. This would be destabilizing, not stabilizing.

5. Hume’s price-specie-flow mechanism suggested that a country could not sustain a positive balance of trade because of the effect on money and prices. The external payments position had repercussions on internal economic variables. A continual positive trade balance was thus not a viable policy target, and not a continuous source of increased wealth. Smith’s concept of absolute advantage indicated that both countries could gain from trade, in direct contrast to the Mercantilist’s zero-sum-game view of trade.

6. The United States has an absolute advantage in the production of wheat (3 hrs./unit < 4 hrs./unit) and the United Kingdom has an absolute advantage in clothing (4 hrs./unit < 9 hrs./unit). The United States would gain at the barter price of 1C:2W (1W:0.5C) since it only gets 0.33C for 1W in autarky. Similarly, the United Kingdom would benefit because it takes only 0.5C to obtain a unit of wheat with trade instead of 1C in autarky.

7. (a) In autarky the United Kingdom would produce 75 units of clothing (300 labor hours/4 hrs.) and 50 units of wheat (200 labor hours/4 hrs.).

   (b) If the United Kingdom allocates all of its labor to clothing production, it will
produce 125 units of clothing (500 total labor hours/4 hrs.). United Kingdom consumption of clothing with trade will be the difference between domestic production and exports, i.e., 85 units of cloth. United Kingdom consumption of wheat will be equal to the 80 units of wheat imports it receives for its 40 units of clothing exports \([(40 \text{ units of exports}) \times (2W/1C)]\). Thus, with trade, United Kingdom consumption of clothing increased from 75 to 85 units and its consumption of wheat increased from 50 units to 80 units.

8. (a) In autarky United States wheat production will be 110 units (330 labor hours/3 hrs.), and cloth production will be 30 units (270 labor hours/9 hrs.).

(b) With trade, the United States will consume 120 units of wheat (200 units of production less the 80 units of exports) and 40 units of cloth imports. Consequently, with trade U.S. consumption of wheat has risen from 110 to 120 units and its consumption of cloth has risen from 30 to 40 units.

In this case trade is a positive-sum game since both parties are able to consume more of both goods with trade compared to autarky, i.e., both countries unambiguously gain from trade.

9. A Mercantilist would view the continuing trade surplus as a very desirable outcome since it produces a net increase in Japanese holdings of foreign exchange (claims on foreign country assets), which is similar to increased holdings of specie in Mercantilist times. To the Mercantilist, the surplus represents successful Japanese economic policy, not a problem. Hume would argue that the situation would be self-correcting if a fixed exchange rate system is in place as long as prices and wages are flexible and Japan does nothing to interfere with the flow of payment and its impact on the money supply. The increase in the money supply accompanying the trade surplus would lead to a relative increase in the prices of Japanese goods, thus reducing the trade surplus. In Japan’s trading partners, the money supply would decrease and prices would decrease, thus decreasing their deficits. Movement to a zero trade balance would also occur under a flexible rate system because the trade surplus would lead to an increase in the value of the Japanese currency and therefore to a relative increase in the prices of Japanese goods and services.

10. With a price elasticity of demand of (-) 2.0, a 10 percent increase in price will cause the quantity demanded in Spain to fall by 20 percent \(= (-2.0) \times (0.10)\). Since France was initially exporting 5,000 units, the new level of exports will be 4,000 \(= (5,000) \times (1 - 0.20)\). The new value of French exports will be 440,000 francs \(= (4,000) \times (110)\), which is exactly equal to its new level of imports. The increase in French prices has thus worked to remove its trade surplus with Spain.
CHAPTER 3
THE CLASSICAL WORLD OF DAVID RICARDO
AND COMPARATIVE ADVANTAGE

I. Outline

Introduction
Assumptions of the Basic Ricardo Model
Ricardian Comparative Advantage
Comparative Advantage and the Total Gains From Trade
- Resource Constraints
- Complete Specialization
Representing the Ricardian Model With Production-Possibilities Frontiers
- Production-Possibilities - An Example
- Maximum Gains from Trade
Comparative Advantage and the Developing Countries
Summary

II. Special Chapter Features

Box 1: David Ricardo (1772-1823)
Case Study 1: Export Concentration of Selected Countries
Box 2: Comparative Advantage and the Gains from Trade: Another Example

III. Purpose of Chapter

The purpose of this chapter is to introduce students to the basic idea of Classical comparative advantage, demonstrate the gains from trade, and explain why trade will lead to country specialization in production of the export good(s).

IV. Answers to End-of-Chapter Questions and Problems

1. (a) The autarky price ratios:
   France: 1 computer:25 wheat, or 1 wheat:1/25 computer
   Germany: 1 computer:20 wheat, or 1 wheat:1/20 computer

   (b) France has a comparative advantage in wheat and Germany in computers. France’s disadvantage is relatively smaller in wheat than in computers, i.e., 4/3 < 100/60; Germany’s advantage is relatively greater in computers than in wheat, i.e., 60/100 < 3/4.

   (c) In autarky in France it takes 25 wheat to buy a computer (or 100 days). If it only takes 22 wheat to import the computer, France will save 12 days (= 3x4) of labor/computer. In
Germany in autarky it takes 1/20 of a computer (3 days) to acquire one wheat. If with trade it only takes 1/22 of a computer (2.73 days)/wheat, Germany saves 0.27 days/wheat import.

(d) France saves 4 days of labor/computer; Germany saves 0.5 days of labor/wheat.

(e) As the international terms of trade move closer to those of France in autarky, the benefits accruing to Germany increase (e.g., a saving of 0.5 days/wheat instead of 0.28 days), and the benefits accruing to France decrease (e.g., a saving of only 4 days/computer instead of 12 days/computer).

2. (a) In the United Kingdom, one day of labor can produce 1/3 textiles and 1/6 automobiles. In the United States, one day of labor can produce 1/2 textiles and 1/5 automobiles.

(b) 500 textiles

(c) 500 textiles

(d) 500 textiles

In autarky production (and consumption) of textiles and autos will utilize all the available 1,000 days of labor. Thus, 1,000 = (2 days/unit) T + (5 days/unit) A. The consumption requirement is that 10 units of textiles be consumed for every unit of automobiles. Hence, total textile production is equal to (10) (total auto production), i.e., 10A. Thus, given the available labor, and substituting 10A for T,

\[ 1,000 = (2)(10A) + 5A \]

\[ A = 40 \text{ units} \]

If \( A = 40 \) units, then textile production = \([1000 - (40)(5)]/[2 \text{ days/unit}] = 400 \) units. With specialization in textile production and trade, textile production equals 500 units. Consumption of textiles (\( C_T \)) is equal to textile production minus the textile exports used to acquire auto imports, and auto imports are equal to auto consumption (\( C_A \)). With the international terms of trade of \( 1A:2T \), auto imports = \((1A/2T)(\text{exports of textiles}) = \((1A/2T)(\text{textile production - textile consumption})\). By the demand assumption, consumption of autos is also equal to \((1/10)(\text{textile consumption})\). Hence, \( C_A = \((1/2)(500-C_T) \) and \( C_A = \((1/10)(C_T) \). Thus,

\[ (1/2)(500 - C_T) = (1/10)(C_T) \]

\[ 250 - (1/2)(C_T) = (1/10)(C_T) \]
\[0.6C_T = 250\]
\[C_T = 416b\text{ units}\]

With \(C_T = 416b\) units, \(C_A\) therefore equals 41b units. Because of specialization and trade, the United States has gained 16b units of textiles \((416b - 400)\) and 1b autos \((41b - 40)\) in comparison with the autarky situation.

4. Classical comparative advantage indicates that when a small price-taking country trades with a large country, the benefits of trade go to the small country. Developing countries may not feel that this is the case due to conditions which violate the Classical assumptions. Examples of these factors might include such things as imperfect competition, economies of scale in production, different product knowledge, and trade policies such as tariffs, quotas, and production subsidies.

5. Portugal has an absolute advantage in the production of both goods, since the absolute labor requirements for both wine and cloth are less than in Spain. However, since the relative labor costs are the same in both countries \((4/8 = 6/12)\), there is no basis for trade based on comparative advantage. Consequently, trade would not take place between the two countries based on either absolute or comparative advantage.

6. Since the price of the import good falls and the price of the export good rises with trade, the slope of the consumption-possibilities curve originating at the production point is now different from that of the domestic production-possibilities curve. Trading away from the domestic production point by exporting some of the comparative advantage good and importing the comparative disadvantage good results in the country being able to consume outside the production-possibilities curve. This is sometimes referred to as the gains from exchange.

7. This could follow from the conclusions reached regarding the distribution of benefits from trade between countries of different economic size. If the impact of the difference in size between the two countries leads to the international terms of trade changing relatively more for the smaller country, then the smaller country will receive relatively more of the benefits of trade between the two. Since the United States is much larger than Mexico, Mexico would receive more of the gains from increased trade accompanying NAFTA as long as the relative change in its prices is greater. However, since the United States is certainly not a “large” country economically or dominant in all of the traded goods and services between the two, both countries should experience some gains from the increased trade and specialization accompanying the trade agreement.

8. This statement could be true if trade was based on absolute advantage. However, since trade can take place on the basis of comparative advantage, what counts is relative cost differences. Consequently a country can be less efficient or become less efficient in all goods and yet gain from trade as long as there are relative cost differences in autarky. Thus, different rates of productivity growth may change what a country exports, but it is unlikely that it would ever
take away the basis for trade, i.e., its ability to export.

9.

steel

Country A

Country B

wheat

Since Country A is more efficient in the production of both goods, its PPF lies outside that of Country B. However, if its comparative advantage is in steel, its autarky price ratio will indicate that steel is relatively less costly in terms of wheat, compared to Country B, and its PPF will have a steeper slope, i.e., \((P_w/P_s)_\text{Country A} > (P_w/P_s)_\text{Country B}\)
CHAPTER 4
EXTENSIONS AND TESTS OF THE CLASSICAL MODEL OF TRADE

I. Outline

Introduction
The Classical Model in Money Terms
Wage Rate Limits and Exchange Rate Limits
Multiple Commodities
  - The Effect of Wage Rate Changes
  - The Effect of Exchange Rate Changes
  - The Dornbusch-Fischer-Samuelson Model
Transportation Costs
Multiple Countries
Evaluating the Classical Model
Summary

II. Special Chapter Features

Box 1: Wage Rate Limits and Exchange Rate Limits in the Monetized Ricardian Framework
Box 2: Demand Relationships in the DFS Model
Box 3: Comparative Statics Analysis in the DFS Model
Case Study 1: The Size of Transportation Costs
Case Study 2: Labor Productivity and Import Penetration in the U.S. Steel Industry

III. Purpose of Chapter

The purpose of this chapter is to present several extensions of the Classical Ricardian model in order to demonstrate more fully the factors that influence international trade beyond the simple two country-two commodity labor requirement barter model developed in Chapter 3.

IV. Answers to End-of-Chapter Questions and Problems

1. As a result of the trade surplus, France experiences, under a fixed exchange rate, a net gold inflow and the United Kingdom experiences a net gold outflow. Assuming that the price-specie-flow mechanism is in operation, these gold movements will result in an increase in prices and wages in France and a decrease in prices and wages in the United Kingdom. Since the demand for traded goods is assumed to be price-elastic, this will cause the expenditures for U.K. goods by France to rise and the expenditures for French goods by the United Kingdom to fall.
These adjustments will take place until trade is balanced. The changes in prices in the two countries will lead to a change in the terms of trade that will move them closer to those of the United Kingdom in autarky, i.e., the terms of trade will deteriorate for the United Kingdom and improve for France.

2. (a) There is a basis for trade here because the relative labor costs for the two commodities are different in autarky, i.e., 6/8 is not the same as 4/4. From another perspective, the individual price ratios in autarky are different between the two countries, i.e., they are 1W:0.67S (or 1S:1.5W) in Italy and 1W:0.5S (or 1S:2W) in Spain.

(b) Italy should export shoes and Spain should export wine because the relative labor cost of shoes is less in Italy relative to wine. From Spain’s point of view, its absolute disadvantage is less in wine compared to shoes.

(c) The international terms of trade must lie between 1W:0.67S and 1W:0.5S (or 1S:1.5W and 1S:2W).

(d) The commodity terms of trade = 1 wine:(P_{wine}/P_{shoes}) shoes [or 1 shoe: (P_{shoes}/P_{wine}) wine], which results in 1 wine:(14/24) shoes, i.e., 1 wine:0.583 shoes [or 1 shoe: (24/14) wine, i.e., 1 shoe:1.714 wine].

3. Given the Spanish wage rate of 3.5 pesos per hour and the 1:1 exchange rate, the limits to the wage in Italy are 4b and 3½ lire/hr.

   Given the Italian wage rate of 4 lire per hour and the 1:1 exchange rate, the limits to the wage in Spain are 3 and 4 pesetas/hr.

   Given the Italian wage rate of 4 lire/hour and the Spanish wage rate of 3.5 pesos/hour, the limits to the exchange rate are 7/8 and 1 1/6 peseta/lira.

4. Italy will export shoes and import clothing, wine, cutlery, and fish. Spain will export clothing, wine, cutlery, and fish and import shoes.

   With the inclusion of transportation costs, clothing, wine, and fish become nontraded goods, Spain maintains its comparative advantage in cutlery and continues to export it, and the cost of shoes is exactly equalized between the two countries (shoes thus may or may not be traded). The trade pattern changes because the relative costs of the products change when transportation costs are included and assumed to be paid by the importer. In the cases of clothing, wine, and fish, transportation costs exceed the difference in product costs between the two countries and thus cause them to become nontraded goods.

5. Increases in foreign country productivity will cause the A(z) curve to shift downward as
a_i/a_f falls for each good. This will lead to a fall in home country export goods (an increase in foreign-country export goods) since the boundary good shifts to the left in the DFS diagram. There will be a decline in the wage level in the home country relative to the foreign country. In addition, following the analysis in Box 3 in the chapter, the foreign country will experience a gain in real income in terms of both home country goods and foreign country goods, and the home country will experience a gain in real income when income is expressed in foreign goods and no change in real income when income is expressed in home goods. Since the home country in fact consumes both home and foreign goods, it thus attains a higher real income.

6. There is a basis for trade for all three countries since all three autarky price ratios are different from each other and from the international terms of trade. With an international terms of trade of 1 fish:0.5 potatoes, Sweden and Poland will export potatoes and import fish, and Denmark will export fish and import potatoes.

7. Yes. Since productivity in U.S. manufacturing is considerably higher than in Mexican manufacturing, one would expect the level of wages to be considerably higher in the United States than in Mexico. For traded goods, if U.S. productivity is five times as high but U.S. wages are less than five times as high, U.S. manufactured goods prices would tend to be lower priced than Mexican goods. The relatively great demand for U.S. goods (relatively small demand for Mexican goods) would therefore drive up U.S. wages (and drive down Mexican wages) until the wage difference roughly matches the productivity difference. Similarly, if U.S. wages are more than five times Mexican wages, Mexican goods would be in relatively great demand (and U.S. goods in relatively small demand). Mexican wages would then rise (and U.S. wages would fall) until the wage difference again is roughly equal to the productivity difference. In practice, the matter is made more complicated by such factors as nontraded goods and a different composition of goods in the two countries. However, the general principle of the link between relative wages and relative productivity differences still holds.

8. (a) The relative wage ratio is \( \frac{W_{U.S.}}{W_{U.K.}} = \frac{\$20}{\$\frac{8}{2}/\$1} \) = 5/4. Thus the United Kingdom exports bread and books; the United States exports VCRs, rugs, and lamps.

(b) The upper limit to U.K. wages is found by setting \( \frac{2}{3} = \frac{\$20}{W_{U.K.} \cdot \$2/\$1} \); therefore the upper limit to \( W_{U.K.} \) is £15 per day. By setting \( \frac{4}{2} = \frac{\$20}{W_{U.K.} \cdot \$2/\$1} \), the lower limit to \( W_{U.K.} \) of £5 per day is obtained.

(c) The upper limit to the exchange rate is found by setting \( \frac{2}{3} = \frac{\$20}{(\$8 \cdot \text{e})} \), which yields the result of $3.75/£1. By setting \( \frac{4}{2} = \frac{\$20}{(\$8 \cdot \text{e})} \), the lower limit of $1.25/£1 is obtained.

9. (a) The new U.K. labor times are: bread - 1.6 days; VCRs - 6.4 days; lamps - 3.2 days; rugs - 2.4 days; books - 1.6 days. With these numbers and the original wage ratio of 5/4, the United Kingdom will export bread, VCRs, rugs, and books; the United States will export lamps.

(b) The new upper limit to U.K. wages is found by setting \( \frac{1.6}{3} = \frac{\$20}{W_{U.K.} \cdot \$2/\$1} \);
therefore the upper limit to $W_{U.K.}$ is £18.75 per day. By setting \((3.2)/2 = 20/(W_{U.K.} \cdot $2/£1)\), the lower limit to $W_{U.K.}$ of £6.25 per day is obtained. Thus, with the U.K. productivity improvement, both the upper limit and the lower limit to U.K. wages are higher than prior to the improvement.

10. This is to some extent an opinion question, but deficiencies of the Classical model that could be indicated clearly include the use of the labor theory of value, the constant cost assumption, and the assumption of a smooth monetary adjustment mechanism. The labor theory of value obviously ignores the role of other factors of production in the determination of production cost and hence of pretrade price ratios; the constant cost assumption typically yields the unrealistic situation of complete specialization by both countries; and the lack of a smooth monetary adjustment mechanism in practice means that the actual trade pattern can differ from the comparative advantage pattern. Other deficiencies that could be mentioned that result in a lack of complete realism are the specific assumption that the quantity theory of money holds and the general assumption of the existence of perfect competition.
CHAPTER 5
INTRODUCTION TO NEOCLASSICAL TRADE THEORY:
TOOLS TO BE EMPLOYED

I. Outline

Introduction
The Theory of Consumer Behavior
  - Consumer Indifference Curves
  - The Budget Constraint
  - Consumer Equilibrium
Production Theory
  - Isoquants
  - Isocost Lines
  - Producer Equilibrium
The Edgeworth Box Diagram and the Production-Possibilities Frontier
  - The Edgeworth Box Diagram
  - The Production-Possibilities Frontier
Summary

II. Special Chapter Features

Box 1: Francis Ysidro Edgeworth (1845-1926)
Case Study 1: Consumer Expenditure Patterns in the United States

III. Purpose of Chapter

Since neoclassical trade theory at the undergraduate level relies heavily on a few basic graphical micro tools, we think it useful to gather these tools into one convenient place early in the book. The purpose of the chapter is to re-introduce the student to thinking in marginal terms and to re-emphasize principles of maximization. The student should become aware early in the course that the conceptual precision of economic analysis to which he or she was exposed in earlier work is going to be employed in the international trade course as well.
IV.  
Answers to End-of-Chapter Questions and Problems

1. In the graph below, the initial equilibrium is at point $E_1$ with relative prices $(P_X/P_Y)_1$. If the price of good $X$ falls while the price of good $Y$ remains constant, then a new, flatter price line such as the dashed $(P_X/P_Y)_2$ line emerges from the original intercept at point $A$ on the vertical axis. Since $MU_X/P_X$ is now greater than $MU_Y/P_Y$ at $E_1$, the consumer will substitute toward greater consumption of the $X$ good and less consumption of the $Y$ good in order to increase total satisfaction. Equilibrium will move from $E_1$ to $E_2$, and the consumer will be on a higher indifference curve and will have increased the relative consumption of good $X$. Only if good $X$ is a sufficiently “inferior” good will the relative increase in the quantity of $X$ consumed not occur.

2. Consider an indifference curve diagram such as Figure 5 in the text. A shift in the income distribution toward consumers with a relatively stronger preference for good $Y$ than in the original distribution will make each curve “flatter” and will shift each curve leftward toward the vertical axis. The curves become flatter because, for any total amount of $Y$ taken away from consumers at the margin in proportion to their incomes, more $X$ must be given to the community as a whole in order to restore each consumer to his or her original level of satisfaction. The leftward shift occurs because, at each given total amount of good $Y$ consumed (which is now more preferred), less $X$ is necessary in order for the community as a whole to attain a given utility level.

3. In Figure 10 in the text, consider the lower intersection point (not labeled) of isoquant $Q_0$ with budget line $B_1$. At that point, $MPP_l/MPP_k$ is less than $w/r$, since the isoquant is flatter than the isocost line. This indicates that $(MPP_l/w) < (MPP_k/r)$, or that, at the margin, the output obtained per dollar spent on labor by the firm is less than the output obtained per dollar spent on capital. The profit-maximizing entrepreneur will therefore, with the given budget, reallocate spending toward capital and away from labor. The reallocation will stop at point $E$, where, at the
margin, the output per dollar spent on labor is equal to the output per dollar spent on labor. The higher isoquant $Q_1$ will have been reached, and equality between $MPP_L/MPP_K$ has been achieved by a rising $MPP_L$ as less labor is utilized and a falling $MPP_K$ as more capital is utilized.

4. No, it cannot be unambiguously determined. With capital on the vertical axis and labor on the horizontal axis, the new, flatter isocost line will have a vertical-axis intercept lower than originally and a horizontal-axis intercept to the right of the original intercept. If this new isocost line passes above the original equilibrium point, the new level of output will be greater than before the factor price changes; if it passes below the original point, output will have fallen.

5. With labor on the horizontal axis and capital on the vertical axis, the original isocost line has a vertical-axis intercept of 120 hours of capital usage and a horizontal-axis intercept of 1,200 hours of labor usage. The slope of this isocost line is (-)1/10 or 0.10. With the specified changes in factor prices, the isocost line shifts inward on both axes since the prices of both inputs have increased. The new intercepts are at 100 hours of capital and 800 hours of labor, and the new isocost line is slightly steeper [having a slope of (-)15/120 or 0.125] than the old one. The equilibrium level of output has fallen because all inputs have risen in price; the firm has also shifted toward using more capital relative to labor, since $w/r$ has risen.

6. The PPF would exhibit constant opportunity costs. Suppose that the employment of all of the economy’s capital and labor in the X industry (an endpoint of the Edgeworth box diagonal) yields 100 units of X output (and 0 units of Y output). Alternatively, suppose that employment of all capital and labor in the Y industry yields 200 units of Y output (and 0 units of X output). With constant returns to scale in both industries, production at the midpoint of the diagonal (using one-half of the economy’s capital and labor in each industry) would therefore yield 50X and 100Y. Employment of one-fourth of the economy’s capital and labor in the X industry and three-fourths of the economy’s capital and labor in the Y industry (i.e., at a point one-fourth of the distance along the diagonal from the X origin to the Y origin) would yield 25X and 150Y. Plotting these various output combinations (and the output combinations of all other production points on the diagonal) yields a straight-line PPF. This PPF would be analogous to the dashed line RTMWQ in Figure 15(b) in the text.

7. This statement is incorrect. The discussion in the text regarding the production-possibilities frontier indicates that a PPF with increasing opportunity costs emerges when constant returns to scale exist in each industry, provided that the industries have different factor intensities. Thus neither industry needs to be operating in a context of decreasing returns to scale in order to generate an increasing-opportunity-costs PPF.

8. Less; more. The overall demand for labor would rise and the overall demand for capital would fall as the industry with the higher K/L ratio (lower L/K ratio), industry Y, contracts, while the industry with the lower K/L ratio (higher L/K ratio), industry X, expands. Hence, relative factor prices $w/r$ will rise (or $r/w$ will fall). No, the (absolute values of the) isoquant slopes at V’ will be higher than at S’ because, in equilibrium, these (absolute values of the ) slopes are equal to
the now-higher w/r. An alternative geometric explanation is that, with homothetic isoquants, a ray from \(0_X(0_Y)\) through \(S'\) would hit isoquant \(x_2(y_4)\) at a point below and to the right (above and to the left) of \(V'\), a point that would have the same slope as isoquant \(x_1(y_6)\) at \(S'\). Given the convex shapes of isoquants, \(V'\) would then have a steeper slope than \(S'\).

9. The Edgeworth box would become “taller” since the vertical capital axes become longer and the horizontal labor axes stay the same length. The PPF will also become “taller” since the good Y intercept shifts upward by a greater percentage than the good X intercept shifts rightward. Note, however, that the good X intercept does shift to the right because, with a larger capital stock, more X can be obtained when all resources are devoted to X production.

10. If the price of labor rises with no change in the price or rental rate of capital, w/r increases (r/w decreases). Producers in both industries would respond by using relatively less labor and relatively more capital, and the K/L ratio would rise in both industries. Note that, in this question, we do not specify the cause of the rise in the price of labor - the effects on output of each good and on total output would depend on this cause and would be different, for example, if the cause were technological change that increased the demand for labor rather than a desire on the part of labor to take more leisure time.
CHAPTER 6
GAINS FROM TRADE IN NEOCLASSICAL THEORY

I. Outline

Introduction
Autarky Equilibrium
Introduction of International Trade
- The Consumption and Production Gains from Trade
- Trade in the Partner Country
Minimum Conditions for Trade
- Trade between Countries with Identical PPFs
- Trade between Countries with Identical Demand Conditions
- Conclusions
Some Important Assumptions in the Analysis
- Costless Factor Mobility
- Full Employment of Factors of Production
- The Indifference Curve Map Can Show Welfare Changes
Summary

II. Special Chapter Features

Box 1: The Case of Differing Tastes and Identical Constant Costs of Production
Case Study 1: Income Distribution Changes with Increased Trade in the United States
Box 2: “Actual” versus “Potential” Gains from Trade

III. Purpose of Chapter

The purpose of this chapter is to build the case, using familiar microeconomic tools, for a country to participate in international trade rather than to remain in autarky. The chapter thus uses more modern or updated analysis to arrive at the Classical conclusions, and it also attempts to acquaint the student with some of the important underlying assumptions in this neoclassical analysis of trade.

IV. Answers to End-of-Chapter Questions and Problems
1. Figures 1 and 2 in the text are the relevant diagrams. Point E is the production equilibrium position because the marginal rate of transformation in production (= marginal cost of X/marginal cost of Y) is equal to the relative commodity price ratio \( P_X/P_Y \) at that point. For the given relative prices, production at any other point would have \( P_X/P_Y \) unequal to \( MC_X/MC_Y \), or \( P_X/MC_X \) unequal to \( P_Y/MC_Y \). Hence, firms would have an incentive to shift resources until point E was attained.

For consumers, point E is the equilibrium position because, at that point, the marginal rate of substitution in consumption (= marginal utility of X/marginal utility of Y) is equal to \( P_X/P_Y \). Consumption on the PPF at any other point would be on a lower indifference curve, and, for the given prices, \( MU_X/MU_Y \) is unequal to \( P_X/P_Y \) (or \( MU_X/P_X \) is unequal to \( MU_Y/P_Y \)). Since consumption of one good at the margin brings less utility per dollar spent than on the other good, consumers will change their consumption bundle until point E is attained.

In order for the country to gain from trade, the world \( P_X/P_Y \) must be different from the autarky \( P_X/P_Y \). With different relative prices on the world market, a reallocation of production and consumption will enable the country to move to a higher indifference curve.

2. Yes, the country should trade. It should export cloth since that is the good of comparative advantage, and producers will have a profit incentive to sell cloth at its relatively higher price on the world market. The country will gain from trade because its trading line (CPF with trade) will permit larger consumption bundles than are possible in autarky, since the exported cloth allows for the purchase of relatively cheaper machines than in autarky. As long as world prices differ from autarky prices, the country can move to a higher indifference curve by participating in trade.

3. The “gains from exchange” (consumption gain) occur because of the opportunity to consume at different relative goods prices, even though production does not change. The higher relative price for the export good on the world market permits consumption of the now-relatively lower priced import good, and consumers will substitute toward the import good and will move to a higher indifference curve than was possible in autarky. The “gains from specialization” (production gain) reflect the enhanced real income possible for the economy because it is now using resources more efficiently by concentrating its production to a greater extent on its comparative advantage good.

4. Yes. Even though unemployment may not fall with the opening of the country to trade, the country can still be reallocating production (increasing the proportion of employed workers in the export industry and decreasing the proportion in the import-substitute industry) and can trade along a CPF different from the CPF being attained in autarky. The consumption and production gains from trade can still be realized. In fact, consumption could now even occur outside (rather than inside) the PPF with a sufficient volume of trade. Further, even if no workers can be shifted to the export industry from the import-substitute industry (or from the unemployment pool)
because of rigidities, the consumption gain from trade will still occur.

5. The statement is incorrect. This is the case of trade with a “right-angle” PPF. The consumption gain from trade will still be realized because trade has exposed the country to a different set of relative commodity prices.

6. Without getting into material generally beyond the scope of the undergraduate course (such as the conditions discussed in the Tower article cited in the text or in Miltiades Chacholiades, *International Trade Theory and Policy*, Chapter 5), the general statements regarding the indifference curve map and welfare changes found in the last section can be used to answer this question.

7. Even though a country’s welfare is enhanced by trade, this does not mean that (without compensation) each person in the country gains from trade. For example, consumers with strong relative preference for the export good can experience reduced welfare because of the rise in the relative price of that good with the expansion of trade, and thus a reduction in trade will improve their welfare. Further, if adjustment to trade is not smooth and complete, potential shutdowns and unemployment in the import-competing industries can generate substantial pressure to keep trade barriers intact. In addition, as will be developed in Chapter 8, the country’s scarce factors of production will receive lower real rewards as trade expands, as will (at least temporarily) any factors of production that are specific to the import-competing industry. The owners of these resources will thus seek to reduce trade since their factor returns will thereby be increased.

8. This position reflects a misunderstanding of the nature of the gains from trade. With trade, both countries become better off in that movement can take place to a higher community indifference curve in each nation. Certainly U.S. producers in industries that would now compete with Cuban exports (principally sugar) would be injured, but U.S. consumers of sugar would gain, as would U.S. producers of new exports to Cuba (such as machine tools). As this chapter has explained, if the compensation principle is employed, those who gain from trade can fully compensate all losers and still be better off because a larger quantity of goods is available. Of course, relaxation of the embargo involves political dimensions as well as economic dimensions, and these noneconomic aspects need to be taken into account when deciding upon the most desirable course of action.

9. It is not likely that trade would cease even if production conditions were to become identical (identical technologies and relative factor endowments). This is because there would still be a basis for trade as long as demand conditions (as reflected in the two community indifference maps) continued to be different for the two countries.

10. Even though a change in the indifference map makes it impossible to compare the new and old indifference curves in a meaningful way, it is still possible that a conclusion regarding the gains from trade can be reached by comparing the old consumption bundle with the new
consumption bundle. If a country is consuming more of both goods after trade or the same amount of one good and more of the other, it can be concluded that the country is better off with trade. This conclusion rests on the long-held axiom that more is preferred to less. However, if trade involves moving to a consumption point which involves having more of one good and less of the other, a clear ambiguity exists as discussed in Figure 5. Such an ambiguity can potentially be removed, however, if by changing the trade bundle, the country can move to a consumption situation where winners could compensate losers and where no one is worse off and at least one person is better off. See Box 2 for more discussion.

11. While the opening of trade improves the overall well-being of a country, it can affect the distribution of real income and leave certain individuals less well off. This results from the fact that the price of the export good is rising, the price of the import good is falling, and factor prices are changing. In this case, Ms. Jones is correct about her situation but not about the situation of the country. Also, as will be seen in Chapter 8 (but not yet covered here), if Ms. Jones owns the abundant factor used intensively in food production (the export), her real income should be rising, since the price of the abundant factor rises faster than does the price of the export (via the Stolper-Samuelson theorem and the magnification effect). In this instance her conclusion about her own situation is incorrect. If, however, she owns the scarce factor of production, she will be strictly worse off since she will be faced with both an increased price of food and a falling income due to the decline in the price of the scarce factor. If Ms. Jones falls into the latter category, she should lobby for “compensation” from those whose real income has clearly increased from trade rather than for the imposition of trade restrictions which would lead to a fall in real income for the economy as a whole.
CHAPTER 7
OFFER CURVES AND THE TERMS OF TRADE

I. Outline

Introduction
A Country’s Offer Curve
Trading Equilibrium
Shifts of Offer Curves
Elasticity and the Offer Curve
Implications of Offer Curve Elasticity for the Terms of Trade and the Volume of Trade
  - Growth and Foreign Demand Elasticity
  - Taste Changes in the Foreign Country
Other Concepts of the Terms of Trade
  - Income Terms of Trade
  - Single Factoral Terms of Trade
  - Double Factoral Terms of Trade
Summary
Appendix A: Derivation of Import-Demand Elasticity on an Offer Curve
Appendix B: Elasticity and Instability of Offer Curve Equilibria

II. Special Chapter Features

Box 1: The “Tabular Approach” to Deriving an Offer Curve
Box 2: Measurement of the Terms of Trade
Case Study 1: Terms of Trade for Major Groups of Countries, 1970-1995
Case Study 2: Income Terms of Trade of Major Groups of Countries, 1970-1995

III. Purpose of Chapter
The purpose of this chapter is to introduce students to the concept of the offer curve and to the determination of the equilibrium terms of trade. A general overview of the chapter is that, until this point in the book, the terms of trade have been “given” or assumed: now the student can see where the “given” terms of trade came from, namely, the interaction of supply of and demand for goods in the world market.

IV. Answers to End-of-Chapter Questions and Problems

1. A change in tastes by the home country’s consumers toward greater relative preference for the import good would increase the willingness of the country to trade. In addition, a rise in income (provided that imports as a whole are not “inferior goods”) would also make the country more willing to trade at each terms of trade. Other events leading to greater willingness to trade would be, for example, increased productivity in the export industry and trade negotiations that resulted in a lowering of trade barriers by the home country.

2. If the demand increase for the export good is by the foreign country, the terms of trade will improve by an equal amount in either instance. If the country is large, the normal upward shift in the foreign offer curve occurs; if the country is small, the straight-line offer curve by the foreign country pivots to higher terms of trade for the home country. If the demand increase for the export good is by home country citizens, the home country’s offer curve pivots inward. If the country is large, the terms of trade will improve, but, if the home country is small, there will be no impact on the terms of trade since the a small country faces a foreign offer curve that is a straight line from the origin.

3. The terms of trade for country I will definitely deteriorate, since both shifts are working in that direction. However, the impact on the volume of trade is indeterminate without more information. Assuming that country I is operating in the “elastic” portion of its offer curve, the increased willingness to trade by I will lead to an expansion of both its exports and imports (if country II is operating on the “elastic” portion of II’s curve) and to an expansion of I’s exports and a contraction of I’s imports (if country II is operating on the “inelastic” portion of II’s curve. The reduced willingness to trade by country II will lead to a contraction of both the exports and imports of country I regardless of the elasticity range of II’s curve. The net effect on I’s exports is indeterminate always and depends on the relative extent of the offer curve shifts; the net effect on I’s imports is indeterminate if country II is operating in its “elastic” range and a decline if II is operating in its “inelastic” range. If country I is operating in the “inelastic” portion of its offer curve both before and after the two shifts, the result will be a greater volume of exports by I if II’s curve is “elastic” but export volume could be less if II is in its “inelastic” range; the volume of I’s imports can either increase or decrease with either range of II’s curve. (We assume that the equilibrium positions are “stable” equilibria and, of course, that both countries are “large” countries. You may also wish to assume for your class, as we usually do, that both countries always operate in the “elastic” ranges of their offer curves, which makes the answers to this question and to Question #4 below considerably simpler.)
4. With both countries operating in the “elastic” ranges of their offer curves, the volume of country I’s exports and imports will definitely decrease. However, the terms of trade impact (under all elasticity assumptions) is indeterminate without more information. Country I’s decreased willingness to trade will improve its terms of trade, but country II’s decreased willingness to trade will cause deterioration in I’s terms of trade. The net impact therefore depends on the relative extent of the offer curve shifts. If country I is operating in the “inelastic” portion of its offer curve, the volume of its imports decreases but the volume of its exports can increase if country II is in its “elastic” range. If country II is also operating in the inelastic portion of its offer curve, the volume of I’s exports will decrease but the volume of I’s imports can actually increase.

5. The excess supply of exports of one good (say good X) means that, at the given terms one (say country I) is willing to provide a greater quantity of good X on the world market than country II is willing to purchase at those terms of trade. \( P_X/P_Y \) (with Y being II’s export good) is thus higher than the equilibrium terms of trade. Since \( P_X/P_Y \) is “too high,” this must mean that \( P_Y/P_X \) is “too low” or below the equilibrium level. A relative price of good Y below the equilibrium level means that there is excess demand for good Y. Alternatively, since a supply of exports reflects a demand for imports in the offer curve analysis, a supply of good X from I that exceeds the demand for good X by II must be associated with a demand for good Y by I that exceeds the supply of good Y coming forth from country II at the given terms of trade.

6. In the offer curve diagram below,

the initial trading equilibrium between Iraq and the rest of the world (ROW) is at \( E_1 \), with terms of trade \( TOT_1 \). With the greatly reduced willingness to trade by ROW, the ROW offer curve shifts downward to \( ROW' \). The terms of trade for Iraq deteriorate to \( TOT_2 \), and the volume of Iraq’s exports and imports falls dramatically. If Iraq is in the “inelastic” portion of its offer curve both before and after the ROW curve shift, Iraq could actually end up exporting a larger volume, but this situation is highly unrealistic.
With relatively slow growth in demand for developing countries’ products by developed countries, the developed countries’ offer curve shifts only slightly upward. With relatively rapid growth in demand by the developing countries for developed countries’ export goods, the developing countries’ offer curve shifts rightward to a relatively large extent. The terms of trade deteriorate for the developing countries. If it were postulated that the developed countries were in the “inelastic” range of their offer curve, the developing countries would experience an even greater deterioration in their terms of trade. (It is highly unlikely that the developing countries have an inelastic demand for developed countries’ goods, so that case does not need to be considered.)

8. The offer curves of the oil-importing countries were likely inelastic, since the rise in the price of oil exports by OPEC resulted in greater “revenue” (export quantity in the offer curve diagram) being spent on the crude petroleum imports by any given importing country. Hence, the oil-importers were in the “backward-bending” portions of their offer curves.

9. “Behaving rationally” occurs even with a “backward-bending” offer curve. The underlying economic purpose of exports is to obtain imports for enhancing utility, and a rise in the price of exports constitutes a fall in the relative price of imports. With this fall in price of imports, there will ally be a rise in the quantity imports purchased, and the exporting country will export a smaller quantity if the demand for imports is inelastic. Alternatively, the rise in the price of exports would lead to the export of a smaller quantity if the “income effect” (or “terms of trade effect”) of the price increase outweighs the “production effect” and the “substitution effect.”
10. The commodity terms of trade ratio for 1995 is 92.3 \(= (120/130)\times 100\); the income terms of trade for 1995 are 106.3 \(= (120/115)/130\). Thus the commodity terms of trade deteriorated from 1990 to 1995 while the income terms of trade improved. This could certainly occur if the relative decline in export prices stimulated an elastic response of quantities demanded of the country’s exports.

CHAPTER 8
THE BASIS FOR TRADE: Factor Endowments and the Heckscher-Ohlin Model

I. Outline

Introduction
Supply, Demand, and Autarky Prices
Factor Endowments and the Heckscher-Ohlin Theorem
- Factor Abundance and Heckscher-Ohlin
- Commodity Factor Intensity and Heckscher-Ohlin
- The Heckscher-Ohlin Theorem
- The Factor Price Equalization Theorem
- The Stolper-Samuelson Theorem
- Conclusions
Theoretical Qualifications to Heckscher-Ohlin
- Demand Reversal
- Factor-Intensity Reversal
- Transportation Costs
- Imperfect Competition
- Immobile or Commodity-Specific Factors
- Other Considerations

Summary
Appendix: Complete Specialization in Production

II.   Special Chapter Features

Case Study 1: Relative Factor Endowments in Selected Countries
Case Study 2: Relative Factor Intensities in Selected Products
Box 1: Paul Anthony Samuelson (born 1915)
Box 2: General Equilibrium Adjustments to Trade
Case Study 3: The Effects of International Cartels

III. Purpose of Chapter

The purpose of this chapter is to explain the underlying bases for trade, i.e., to explain the existence of different relative autarky prices in different countries. Particular attention is paid to factor endowments, factor intensities, the Heckscher-Ohlin theorem, the factor price equalization process, and qualifications to the Heckscher-Ohlin explanation.

IV. Answers to Questions and Problems

1. The physical definition of factor abundance is based on the relative physical amounts of the factors present in the country, e.g., the difference in the capital/labor ratios. The country whose K/L ratio is the largest is defined to be the capital-abundant country. The price definition is based on relative prices of the factors rather than on measurements of their presence in the country. It is hypothesized that the relatively-abundant factor in a country should be relatively cheaper compared to a second country. Thus, according to this definition, if the ratio of the price of capital to the price of labor is lower in one country (A) compared to a second country (B), country A is said to be the capital-abundant country.

Under the assumptions of H-O, the two definitions should give the same result. However, if tastes differ between the two countries, then factor prices will not only reflect different supply conditions but also different demand conditions. In this instance the price definition and the physical definition could give conflicting conclusions about relative factor abundance. For example, if consumers in a physically capital-abundant country strongly prefer the capital-
intensive product, this would bid up the price of the capital-intensive good and hence would bid up the price of capital. Therefore, other things equal, w/r would fall and could become lower than in the second country. Hence, the physically capital-abundant country could become labor abundant by the price definition.

2. According to the H-O theorem, countries should specialize in and export the product which uses relatively intensively the relatively-abundant factor. Therefore, Belgium should export capital-intensive goods to France since, by the physical definition, Belgium is the capital-abundant country.

3. The wages in the capital-abundant country should fall and the wages in the labor-abundant country should rise with trade according to the factor price equalization theorem. Therefore, French wages should fall.

4. Assuming that the owners of capital are worried that the distribution of income will turn against them with trade, one concludes that the country in question must be a labor-abundant country. This follows from the Stolper-Samuelson theorem, which indicates that international trade will increase the real income of the owners of the abundant factor and lower the real income of the owners of the scarce factor.

5. Assuming that the country in question is a small country, the opening of the country to international trade will force the monopolist to become a price taker, i.e., to sell the product in question at the prevailing international price or lose its domestic sales. This will cause the monopolist to reduce price and expand output. Even if the country is not a small country, there would be downward price pressure as imports come into the country. In either case, if the international price were below the firm’s shutdown point (minimum average variable cost), the firm would stop producing immediately and go out of business unless it was able to become competitive internationally (reduce its cost of production).

6. If demand conditions are different between the two countries and sufficiently oriented toward the product using relatively intensively the physically relatively-abundant factor in at least one country, the relative autarky prices will be just opposite to what H-O would predict. That is, the price of the capital-intensive good will be relatively higher in the physically capital-abundant country and the price of the labor-intensive good will be relatively higher in the physically labor-abundant country. Consequently, the opening of trade will lead to a pattern of trade just opposite to that predicted by H-O, i.e., the physically capital-abundant country will export the labor-intensive good and import the capital-intensive good. If such extreme differences in demand are possible, then the H-O paradigm can no longer predict the pattern of trade between two countries when using the physical definition of relative factor abundance. Note, however, that trade does still conform to the price definition of relative factor abundance.

7. Assume that capital is a specific factor of production, i.e., that it cannot move from the production of one product to the production of the other. As trade opens for the capital-
abundant country, the country will attempt to expand production of the capital-intensive good (and export it) and contract production of the labor-intensive good (and import it). Since capital cannot move, the change in production takes place by the movement of labor from labor-intensive production to capital-intensive production. This increases the demand for labor and hence the wage rate. Owners of capital in the contracting (labor-intensive) industry find themselves with excess capacity and a falling return to capital. In the capital-intensive industry, the productivity of capital and hence the real return to capital are rising. Although the wage rate is also rising, it is not rising as fast as the price of the export (K-intensive) good due to the declining marginal productivity of labor in the production of the K-intensive good. Consequently, workers who consume only the K-intensive good will find themselves worse off. Thus, those who unambiguously stand to benefit from trade are workers who consume only the cheaper labor-intensive good and the owners of capital used in the expanding capital-intensive industry (whose real incomes are rising). Those who unambiguously stand to lose are workers who consume only the capital-intensive good and owners of capital used in the production of the labor-intensive product (whose real incomes are falling).

8. You should not be surprised if the composition of trade changed. Before the recent upheavals in Eastern Europe and the Soviet Union, the majority of trade of most of the Eastern European countries was with each other and with the Soviet Union through a managed and negotiated framework. With the dissolution of the Soviet Union and the opening of trade with the West, prices began to reflect more accurately the true scarcity values of goods, and the Eastern European countries were also exposed more fully to a new set of potential trading partners. Hence, the relative factor endowments of the Eastern European countries vis-a-vis trading partners and the ability to respond to those endowments changed. Given the new relative scarcities, Heckscher-Ohlin analysis would tell us that new comparative advantages and hence a new pattern of exports and imports would emerge. For example, Hungary is most likely capital abundant relative to Romania but labor abundant relative to Austria; a change in trading partners from Romania to Austria would clearly affect Hungary’s trade pattern.

9. Given that the specific-factors PPF intercepts the Good X axis at a point to the left of the point where the “normal” PPF intercepts the axis, that the economy is characterized by increasing costs, and that only labor is being transferred from industry Y to industry X in the movement from A’ to C’, the slope of the specific-factors PPF at C’ is necessarily steeper than the slope of the “normal” PPF at B’. Consequently, a change in relative prices that would lead to optimal production at B’, \( \left( \frac{P_X}{P_Y} = \frac{MC_X}{MC_Y} \right) \), will be tangent to the specific-factors PPF at a point somewhere between C’ and A’. The presence of factor immobility increases the relative marginal cost of increasing production of Good X and, hence, reduces the production response to the relative increase in \( P_X \).

10. This statement is correct since complete factor-price equalization can only take place in the Heckscher-Ohlin framework if product prices are the same in the two countries with trade. In the presence of transportation costs, the price of any good will differ between two countries by
the amount of transportation costs. Hence, since product prices are not the same, factor price equalization will not take place.

11. In this case, the apparent contradiction of the Heckscher-Ohlin model could be explained by factor-intensity-reversal. In the United States, agricultural production utilizes considerable capital and, thus, many agricultural commodities such as rice are relatively capital-intensive. In India, however, agricultural production uses relatively much more labor than capital and, in all likelihood, is a labor-intensive product. Since there is considerable substitutability between capital and labor in the production of, for example, rice, it would not be surprising to find that rice is a labor-intensive product in a labor-abundant country such as India and capital-intensive in a capital-abundant country such as the United States. Consequently, both countries end up exporting the product because it is intensive in their respective abundant factors.

12. The specific-factors model makes it clear why, for example, if capital is immobile, owners of capital in an import-competing industry in a capital-abundant country would oppose the initiation of international trade. This is because owners of capital in a contracting industry unambiguously are worse off with trade. Improving the mobility of capital in this instance could enable the owners of capital in these declining industries to benefit from trade instead of finding themselves strictly worse off as they would be if their capital could not be easily adapted to production of the comparative advantage good. In graphical terms, improving factor mobility would move the specific-factors PPF (Figure 14) outwards towards the “normal” PPF. Such a change would lead to greater specialization, increased real income (a consumption-possibilities frontier “farther out” from the origin), and increased trade.

CHAPTER 9
EMPIRICAL TESTS OF THE FACTOR ENDOWMENTS APPROACH

I. Outline

Introduction
The Leontief Paradox
Suggested Explanations for the Leontief Paradox
  - Demand Reversal
  - Factor-Intensity Reversal
II. **Special Chapter Features**

Case Study 1: Capital/Labor Ratios in Leading Export and Import Industries, Leontief Test

Box 1: Multiple Regression Analysis

Case Study 2: Factor Content of Trade, Selected Countries

III. **Purpose of Chapter**

The main purpose of this chapter is to summarize various tests of the Heckscher-Ohlin theorem as a predictor of trade patterns among countries, in order to acquaint the student not only with the applicability/non-applicability of Heckscher-Ohlin in practice but also with relevant testing techniques. In addition, we have introduced new material in this edition on the growing income inequality in developed countries so as to make students aware of this phenomenon and of the potential causal role of Heckscher-Ohlin trade in the phenomenon. As with the H-O theorem itself as the underlying basis of trade, there is also considerable controversy pertaining to the empirical importance of H-O trade in leading to the increased inequality. After digesting this chapter, students should have developed an appreciation of the difficulties of testing hypotheses in economics, as well as recognition that H-O has not been conclusively demonstrated to be empirically valid and that other factors besides trade may have played a role in the emergence of the greater inequality.

IV. **Answers to End-of-Chapter Questions and Problems**

1. The Leontief paradox was the finding by Wassily Leontief in 1953 that the capital/labor ratio utilized in U.S. import-substitute industries when weighted by import importance was greater than the capital/labor ratio utilized in U.S. export industries when weighted by export importance. This finding suggested that the United States was importing relatively capital-intensive goods on average and was exporting relatively labor-intensive goods on average. This result was contrary to the trade pattern expected from the Heckscher-Ohlin theorem, since the United States was generally thought to be a relatively capital-abundant country.
2. This is a judgmental question, since several explanations involving demand reversal, factor-intensity reversals, the U.S. tariff structure, labor skills, and natural resources have been offered to account for the paradox. In general, however, the major defect seems to be that the Leontief test utilized a two-factor model, that is, it failed to differentiate labor according to various skill categories and to allow for the role of natural resources. Subsequent studies have suggested that U.S. exports might be relatively “skilled labor-intensive” or “human capital-intensive,” and that imports may be relatively intensive in natural resources as well as in relatively unskilled labor.

3. The answers to this question will vary with student experiences. When traveling in developed countries, the students will most likely not have observed demand patterns to vary much across countries, with an emphasis on goods that are relatively “high tech” in nature or relatively capital-intensive in production (such as VCRs, automobiles, CD players, personal computers). In developing countries, some of these same items will be observed in urban areas, but food and simple clothing items (more labor-intensive goods) will be more noticeable outside the urban centers. These observations may suggest to the students that some tendency toward demand reversal exists, but travelers are not usually exposed to the capital goods and intermediate goods imports of developing countries.

4. These barriers may reflect the desire to engage in import substitution, with the labor-abundant low-income developing countries in particular feeling threatened by perceived higher quality labor-intensive products from newly-industrializing countries and developed countries. There is no necessary contradiction here with Heckscher-Ohlin if the potential imports reflect product differentiation and intra-industry trade (to be discussed in Chapter 10). Also, in light of the Stolper-Samuelson theorem, the owners of capital (the relatively scarce factor in developing countries) may be seeking protection since freer trade will reduce the return to capital. These capital owners may also have disproportionately heavy influence in the policy-making process.

5. The commodity approach examines a cross-section of industries to determine whether the comparative factor intensities of industries are related to net exports (or some other appropriate trade variable) by industry. The factor-content approach examines the relative factor services embodied in a country’s entire export bundle and import bundle. The commodity approach may be more appropriate for predicting which particular goods may be exported or imported as reflections of factor endowments, while the factor-content approach may be more useful for an economywide perspective and for revealing relative factor endowments. Which approach to utilize may depend on the types of questions being asked.

6. This answer requires some judgment on the part of the student as to the relative success of the Heckscher-Ohlin tests discussed in the chapter. Certainly the two-factor Heckscher-Ohlin model is a good candidate for being discarded in empirical work, but the multifactor approach has promise. In view of the findings of Bowen, Leamer, and Sveikauskas, and more recently Daniel Trefler, however, the search for other theories of trade can be useful for supplementing
Heckscher-Ohlin with such influences as demand patterns, technological change, and changing comparative advantage. (These kinds of influences are discussed in Chapter 10.) Hence, perhaps a multifactor Heckscher-Ohlin approach and a “newer theories” approach should both be pursued, and an “either-or” question may not be appropriate.

7. A sample answer:

The rise in income inequality in the last 10-25 years has occurred at the same time that the U.S. economy has experienced a substantial rise in its imports/GDP ratio. Since many of these imports have come from relatively labor-abundant developing countries and are relatively unskilled labor-intensive goods that were manufactured or assembled in these countries, there has been relatively less demand for domestic unskilled labor and hence downward pressure à la Stolper-Samuelson on the wages of that part of the U.S. labor force. At the same time, the United States has been exporting high-tech products that require relatively skilled labor, and thus there has been relatively increased demand for the services of this kind of labor with a consequent rise in the relative return of skilled labor. Therefore, from both the export and the import side, there has been rising inequality within the U.S. labor force. While technological change, the weakening of labor unions, and other such factors have been responsible for some of the relative factor price rise of skilled labor compared to unskilled labor, these phenomena also can be traced back to trade because the threat of global competition has induced the technological change, reduced labor union strength, and so forth. The empirical work of Adrian Wood in particular lends credence to the view that trade has been the principal mechanism that has generated the rising inequality.

8. A sample answer:

While it is clear that increased income inequality and increased U.S. openness to imports have occurred at the same time, trade is but one of several factors in today’s rapidly-changing world that have led to the greater inequality. The nature of technological change seems to be the most important factor, because the increased demand for skilled labor to work with the new technology has led to a rise in the skilled labor/unskilled labor ratio in all industries, not just in traded goods industries. Further, there is little evidence that the relative prices of unskilled labor-intensive goods to skilled labor-intensive goods have fallen, which is necessary for the Stolper-Samuelson mechanism to occur. Other factors have also played a role in the increased inequality, such as a decline in the importance of unions and a fall in the real minimum wage, and these factors are likely due to the political climate and/or to the changing structure of the American economy from manufacturing to services, rather than to trade itself.
CHAPTER 10
POST-HECKSCHER-OHLIN THEORIES OF TRADE
AND INTRA-INDUSTRY TRADE
I. Outline

Introduction
Post-Heckscher-Ohlin Theories of Trade
- The Imitation Lag Hypothesis
- The Product Cycle Theory
- The Linder Theory
- The Kemp Model
- The Krugman Model
- Concluding Comments on Post-Heckscher-Ohlin Trade Theories

Intra-Industry Trade
- Reasons for Intra-Industry Trade in a Product Category
  -- Product Differentiation
  -- Transport Costs and Geographical Location
  -- Dynamic Economies of Scale
  -- Degree of Product Aggregation
  -- Differing Income Distributions in Countries
- The Level of a Country’s Intra-Industry Trade

Summary
Appendix A: The Falvey Model
Appendix B: Measurement of Intra-Industry Trade

II. Special Chapter Features

Case Study 1: Product Age and Industry Characteristics
Case Study 2: Demand Patterns across Countries
Case Study 3: Product Differentiation in Automobiles
Box 1: The Relationship between Price, Marginal Revenue, and Elasticity of Demand
Box 2: Geography and Trade

III. Purpose of Chapter

The purpose of this chapter is to present some newer theories of trade that have emerged in the literature because of the failure of the Heckscher-Ohlin model to explain empirically important parts of world trade. In addition, because intra-industry trade emerges in some of these newer theories and because such trade is important in the real world, the last part of the chapter briefly surveys possible causes of this phenomenon.

IV. Answers to End-of-Chapter Questions and Problems

1. The length of the imitation lag would be influenced by barriers to obtaining information
regarding the production process, the existence of patents, the length of time needed to learn the production process even after the information is obtained, and the extent to which multinational companies exist in the industry, for example. The demand lag would be influenced by the degree to which tastes are similar in the countries, the ease of communication, the amount of interaction between foreign consumers and the home country (e.g., via travel), and so forth.

2. Some examples would be automobiles, tractors, clothing, television receivers, textile machinery, personal computers, and some sporting goods.

3. The Linder theory would suggest somewhat pessimistic prospects in that the per capita income levels and thus the overlapping demands differ widely between the two sets of countries. Indeed, Linder would suggest that the developing countries would trade most intensely with each other, which is not the case in practice. However, many labor-intensive goods sold to developed countries by developing countries (textiles, clothing, shoes) do have some overlap in demand, although the varieties exported may be of higher quality than those sold on developing countries’ home markets. Electronic goods that are assembled in developing countries for export to developed countries would not fit Linder well, since relatively small markets exist for those goods within the developing countries and the goods would not be classified as being “representative” of consumer demand in the developing countries. The Linder theory does not handle the phenomenon of production specifically for export very well. Also, of course, the theory does not embrace primary products (nor was it intended to).

4. The precise countries of export and import of any particular good may not be determinate a priori, as in the Kemp model. The trade pattern may simply depend on which country first establishes a foothold in the market.

5. Before trade begins, many monopolistically-competitive firms producing differentiated goods are in equilibrium with zero profits. When the possibility of trade with other countries begins, export sales of firms increase production because the size of the market has increased and profit prospects have been enhanced. Firms experience reductions in unit costs as they expand, and new varieties of the differentiated goods also appear because home consumers now have foreign varieties available to them. In the trading equilibrium, consumer prices have fallen, more varieties are available, and intra-industry trade in differentiated products is occurring. Because of the greater product variety and the increase in real income due to reduced product prices, consumers in all participating countries are better off than in autarky.

6. Greater choice for consumers may bring greater utility in and of itself. New varieties may initially provide more utility per dollar at the margin and lead to enhanced welfare as new equilibrium position are sought by consumers. Disadvantages associated with greater product variety would be increased advertising costs of firms (which use resources) and the costs to consumers of obtaining information on the characteristics of the differentiated products. There may also be a greater time cost because of the more complicated decision-making process.
7. No. As pointed out in the text, geographical location and transport costs can lead to intra-industry trade in identical products. In addition, the degree of disaggregation in the product classification system may not be detailed enough to capture what are truly different products (e.g., different chemical compounds, special-use machinery).

8. It is a useful distinction if one grants that many differentiated varieties of a product are indeed the same general “product” (i.e., the cross elasticities of demand between the varieties are high). If such is granted, the analyst is forced to look beyond traditional trade theory when examining causative factors for trade patterns. If such is not granted, however, it becomes difficult to explain the U.S. export of Budweiser and import of Corona by relying only on different factor endowments and intensities.

9. The emergence of counterfeit goods suggests that the time lag between initial U.S. production and subsequent overseas production is being shortened. The product cycle is speeding up, and the displacement of U.S. exports in the “maturing product stage” is occurring more rapidly. In addition, unlike the situation in the traditional product cycle, the production abroad is not taking place in U.S.-owned facilities. Since the erosion of U.S. firms’ profits is occurring more quickly, there is less stimulus for U.S. R&D spending on new products to be undertaken than there would be if patents or proprietary knowledge could effectively protect against the counterfeit goods. Hence, while any given product cycle may be more rapid today, there may also be fewer future cycles.

10. The initial shift of athletic shoe production from the United States to South Korea is consistent with the product cycle theory’s suggestion of a shift, as the product becomes more standardized, to a new location with lower labor costs. However, it does not strictly fit the PCT’s suggestion of an initial shift to another developed country comprised of high-income consumers. The next shift in production from Korea to Indonesia and China, as wages rose in Korea, is also consistent with the PCT’s general emphasis on the role of lower wages in determining production location in the “standardized product stage” when the good is “older,” mass-produced, and sold worldwide. Indonesia and China have lower labor costs and living standards than South Korea, which has been rapidly moving toward “developed country” status.

   Obviously, Heckscher-Ohlin could also be of use in explaining the athletic shoe production shifts. In the H-O context, South Korea was labor abundant relative to the United States and shoe production is a relatively labor-intensive process. However, the subsequent rise in Korean wages indicated a change toward less labor abundance in Korea. This gave an incentive for shoe production to shift toward Indonesia and China, which are relatively more labor abundant than Korea.

11. The index \( I_t \) is equal to:
\[
1 - \frac{|(100/500) - (20/400)| + |(300/500) - (80/400)| + |(100/500) - (300/400)|}{(100/500) + (20/400) + (300/500) + (80/400) + (100/500) + (300/400)}
\]

\[
1 - \frac{|.20 - .05| + |.60 - .20| + |.20 - .75|}{2} = 1 - (1.10/2) = 0.45
\]
CHAPTER 11
ECONOMIC GROWTH AND INTERNATIONAL TRADE

I. Outline

Introduction
Classifying the Trade Effects of Economic Growth
  - Trade Effects of Production Growth
  - Trade Effects of Consumption Growth
Sources of Growth and the Production-Possibilities Frontier
  - The Effects of Technological Change
  - The Effects of Factor Growth
Factor Growth, Trade, and Welfare in the Small-Country Case
Growth, Trade, and Welfare: The Large-Country Case
Growth and the Terms of Trade: A Developing-Country Perspective
Summary

II. Special Chapter Features

Case Study 1: Labor and Capital Requirements Per Unit of Output
Box 1: The Effects of Factor Growth on Production Using the Edgeworth Box Diagram
Box 2: Labor Force Growth and Per Capita Income
Box 3: Economic Growth and the Offer Curve
Case Study 2: Terms of Trade of Kenya, South Korea, Pakistan, and Venezuela, 1980-1995

III. Purpose of Chapter

The purpose of this chapter is to demonstrate the way in which economic growth affects international trade and the possible welfare effects that accompany growth in the open economy.

IV. Answers to End-of-Chapter Questions and Problems

1. The growth in only one factor leads, according to the Rybczynski theorem, to the expansion of output in the good using intensively the growing factor and a contraction in output of the good using intensively the non-growing factor. If the growing factor is the abundant factor, then the result is an expansion in production of the export good and a decline in production in the import-competing good (an ultra-protrade production effect) as some of the scarce factor must be shifted away from import-competing production to export production in order to work with the new units of the abundant factor. If the growing factor is the scarce factor, then there will be an expansion in output of the import-competing good and a contraction in output of the export good (an ultra-antitrade production effect) as some of the abundant factor is shifted to work with the new units of the scarce factor.
2. Yes. Since growth in the abundant factor will result in an ultra-protrade production effect, the trading triangle will increase in size unless there is a sufficiently large ultra-antitrade consumption effect. Only if the absolute level of desired consumption of the import good declines sufficiently with growth will the trading triangle get smaller.

3. An inferior good is one whose consumption declines with growth in income. An absolute decline in desired consumption of the export good together with an increase in desired levels of consumption of the import good characterizes an ultra-protrade consumption effect of growth.

4. The trading triangle could expand as in the small-country case as long as the Rybczynski production effect (expansion in production of the import-competing good and contraction of the export good) is more than offset by a sufficiently large ultra-protrade consumption effect (although this of course implies that the export good is an inferior good). In the large-country case it is also possible for an expansion of the trading triangle to take place with other consumption effects, due to the decline in world price of the import good as demand for it declines in the country under consideration. It is certainly possible for the increased purchases of the import good due to the subsequent relative decline in the price of that good to more than offset the initial decline in the trading triangle due to the growth of the scarce factor.

5. This would be the case when the country in question is a large country in terms of the good in question. In this instance the bumper crop would lead to a fall in the relative world price of the export good. If this decline in relative price were sufficiently great, the country could well find itself worse off after the bumper crop. This is a case of immiserizing growth.

6. If constant or decreasing returns to scale characterize production of all commodities, then increasing only one of the inputs by a given percentage, e.g., 10 percent, will result in output rising by less than 10 percent. If the input in question is labor (population), then a 10 percent increase in labor will lead to a less than 10 percent increase in income, and per capita income \([\text{income/labor (population)}]\) will decline since the numerator is growing less rapidly than the denominator (see Box 2). If there were increasing returns to scale at least partly because of increasing marginal productivity of labor, then clearly per capita income could rise with an increase in the labor force. However, if the normal diminishing marginal productivity of labor exists, even with increasing returns to scale, per capita income will still fall with growth in the labor force because other factors of production are being held constant.

7. The sluggish growth in the Japanese economy in the early 1990s meant that Japan’s production-possibilities frontier (and hence its consumption-possibilities frontier) was not shifting outward very rapidly. On the other hand, Japan’s major trading partners in Asia (e.g., China) were growing rapidly, and the United States (Japan’s largest overall trading partner) recovered relatively quickly from its 1990-1991 recession. These trading partners have also been growing in “protrade” fashion. Hence, for these trading partners, PPFs and CPFs on average shifted out more rapidly than for Japan. The partners were offering relatively more exports and demanding relatively more imports in their trade on the world market and with
Japan, and this tended, other things equal, to cause deterioration in their terms of trade. With TOT deterioration for the partners, Japan’s terms of trade improved.

8. The PPF of the unified Germany would lie outside that of the former Federal Republic of Germany. In addition, since East Germany was relatively more labor abundant than West Germany, the new unified PPF will not have shifted out proportionally, but will have shifted relatively more on the labor-intensive good axis. If international prices have remained unchanged, output of the labor-intensive good will clearly increase. However, output of the capital-intensive good could have increased, stayed the same or decreased depending on the relative increase in capital coming from East Germany. If West Germany was a capital-abundant country, according to Heckscher-Ohlin, it should have been exporting the capital-intensive good. Assuming that West Germany was initially exporting capital-intensive goods, the above production effect will fall into either the category of ultra-antitrade (when the production of the capital-intensive export good actually falls) or antitrade (when the growth of the labor-intensive import-competing good is greater than that of the export good).

9. Services

Manufactured goods

Because the innovation was restricted to manufactured goods, the intercept of the new PPF on the manufactured goods axis lies to the right of that of the original PPF. There is no change in the intercept on the services axis since no change in production conditions have occurred there. The change in production conditions will result in an expansion of output of manufactures and a contraction of services at constant international prices. Since this country was initially exporting manufactures, the above changes would produce an ultra-trade protrade production effect.

10. (a) Volume of trade-1995: 20 units of exports of good X; 10 units of imports of good Y. Volume of trade-2000: 28 units of exports of good X; 14 units of imports of good Y.

(b) There is a protrade production effect because, although production of both goods increased, production of the export good (X) increased by 20 percent whereas the growth of production of the import good (Y) was only 10 percent.

(c) Since the growth in consumption of the export good (15 percent) is slightly greater than the growth in consumption of the import good (14.3 percent), the consumption effect is slightly antitrade.
(d) The overall effect is protrade. This is evident since the volume of trade at the constant terms of trade grew by 40 percent, while the growth in output was between 10 percent and 20 percent.

CHAPTER 12
INTERNATIONAL FACTOR MOVEMENTS

I. Outline

Introduction
International Capital Movements Through Foreign Direct Investment and Multinational Corporations
- Definitions
- Some Data on Foreign Direct Investment and Multinational Corporations
- Reasons for International Movement of Capital
- Analytical Effects of International Capital Movements
- Potential Benefits and Costs of Foreign Direct Investment to a Host Country
  -- Potential Benefits of Foreign Direct Investment
  -- Potential Costs of Foreign Direct Investment
  -- Overview of Benefits and Costs of Foreign Direct Investment
Labor Movements Between Countries
Immigration and the United States - Recent Perspectives
Summary

II. Special Chapter Features

Case Study 1: Determinants of Foreign Direct Investment
Case Study 2: Possible Effects of Foreign Investment into the United States
Case Study 3: Immigration into the United States and Canada
Case Study 4: “Foreign Medical Graduates Claim Licensing Bias”

III. Purpose of Chapter

In the theoretical analysis to this point it has been assumed that factors are immobile between countries. Since this is clearly not the case, the purpose of this chapter is to examine the reasons for and the trade and income implications of movements of capital and labor between countries.

IV. Answers to End-of-Chapter Questions and Problems

1. In December 1995, the direct investment position of the United States was a positive $151.5 billion, as foreign direct investment in the United States at yearend was $560.1 billion and U.S. direct investment abroad was $711.6 billion. Countries in Europe and Canada are the major recipients of U.S. investment, which tends to be concentrated in manufacturing and financial
activity. The three largest investor countries in the United States are the United Kingdom, Japan, and the Netherlands. Foreign investment is concentrated in manufacturing, wholesale trade, finance, insurance, and banking.

2. In 1995, six of the top ten (including the top three) industrial corporations were Japanese firms, three were U.S. firms, and one was jointly British and Dutch. In 1996, seven of the top ten banks (including the top three) were Japanese, one was German, one was French, and one was Chinese.

3. Foreign direct investment takes place to earn a higher rate of return. This can result from specific market conditions abroad, from the access to foreign raw material sources, from the attempt to avoid tariffs, quotas, or nontariff barriers by producing abroad, or from taking advantage of lower foreign labor costs.

4. Assuming that capital is the scarce factor, foreign investment would lead to expansion of the capital-intensive import-competing good and contraction of the labor-intensive export good. This would be an ultra-antitrade production effect that would tend to reduce trade unless it was offset by a sufficiently strong ultra-protrade consumption effect accompanying growth.

5. The capital stock in the capital-abundant country would be larger and the capital stock in the capital-scarce country would be smaller. Consequently, output in the capital-abundant country would be larger, output in the capital-scarce country would be smaller, and their combined output would be smaller if capital controls were in place that kept the productivity of capital from equalizing.

6. Assuming that the developing country is a labor-abundant country and that the United States is the capital-abundant country, the movement of unskilled labor should tend to have an ultra-antitrade production effect in both countries. Inasmuch as skilled labor is more properly treated as a form of human capital, then the movement of skilled labor from the developing country to the United States would have an ultra-protrade production effect in both countries.

7. Voters would see the immigration of these skilled workers as increasing the availability of the goods or services which they produce and perhaps lowering the price. Skilled workers see the immigrants as potentially lowering their wage and real income. Congress should weigh the aforementioned costs and benefits of such migration flows and enact legislation consistent with the expected net welfare impact on the country.

8. If both factors of production and goods are free to move, it is difficult to predict the ultimate pattern of production and trade because factor movements substitute for goods movements. The ultimate pattern of trade will depend upon the degree to which factors move to equalize the returns to factors or goods are traded to accomplish the same end (through the factor price equalization process).

9. With high Mexican tariffs in place, potential U.S. exporters (presumably of capital-
intensive goods) found it difficult to compete price-wise with similar Mexican products. As Mexico began to welcome foreign investment in recent years, capital flows have substituted for U.S. exports that had been kept out by the high tariffs. As trade restrictions are reduced under NAFTA, U.S. capital-intensive exports will become competitive in Mexico, reducing the need to invest in Mexico in order to sell in Mexican markets. Thus, the expected trade adjustments that should occur under NAFTA should actually work to reduce U.S. investment in Mexico.

10. Many U.S. citizens have expressed concern over U.S. immigration policy because of their belief that large numbers of current migrants are contributing both to the presence of low wages and to the increased cost of public expenditures, particularly for social programs and education. The fact that the education/skill levels of immigrants appears to be declining contributes to this concern. To the extent that these workers are, however, taking on jobs that U.S. citizens do not wish to and are, in fact, providing unskilled labor at wages less than most U.S. labor would accept means that U.S. consumers are able to purchase these goods and services at a lower price than would be the case in the absence of this immigration. This is particularly true with respect to many food products that utilize migrant labor during planting and harvesting as well as other services which utilize unskilled labor. To the extent that this is true, reducing migration flows would lead to higher prices of some goods and reduced real income of those for whom those products are important parts of their consumption bundle.
CHAPTER 13
THE INSTRUMENTS OF TRADE POLICY

I. Outline

Introduction
Import Tariffs
- Specific Tariffs
- Ad Valorem Tariffs
- Other Features of Tariff Schedules
  -- Preferential Duties
  -- Most-Favored-Nation Treatment
  -- Offshore Assembly Provisions
- Measurement of Tariffs
  -- The “Height” of Tariffs
  -- “Nominal” versus “Effective” Tariff Rates
Export Taxes and Subsidies
Nontariff Barriers to Free Trade
- Import Quotas
- “Voluntary” Export Restraints (VERs)
- Government Procurement Provisions
- Domestic Content Provisions
- European Border Taxes
- Administrative Classification
- Restrictions on Services Trade
- Trade-Related Investment Measures
- Additional Restrictions
- Additional Domestic Policies That Affect Trade
Summary

II. Special Chapter Features

Case Study 1: U.S. Tariff Rates
Case Study 2: The U.S. Generalized System of Preferences
Case Study 3: Nominal and Effective Tariffs in the United States and Japan
Case Study 4: Is It a Car? Is It a Truck?
Case Study 5: Examples of Control over Trade
  -- Argentina
  -- Pakistan
III. **Purpose of Chapter**

The purpose of the chapter is to introduce the wide variety of trade-distorting instruments that exist in practice, as well as to acquaint students with particular policy concepts such as most-favored-nation treatment and the effective rate of protection. Once the instruments are grasped, the stage is set for the discussion of their market and welfare implications in Chapter 14.

IV. **Answers to End-of-Chapter Questions and Problems**

1. Preferential duties discriminate by trade partner in the importation of any given product, while the objective of MFN treatment is to be nondiscriminatory. Since, under MFN, any tariff reduction to one partner is extended to all others with whom MFN agreements exist, the reduction does not benefit only one or a few partners (as it would under preferential duties) to the exclusion of other trading partners.

2. Those industries and residents of a country who can benefit from protection are continuously seeking mechanisms by which their well-being can be enhanced. As tariffs have been reduced through international negotiations, these economic agents have sought to preserve their protected status by pushing for legislation and regulations regarding other barriers (NTBs) not covered by the negotiations.

3. Value added under free trade is $1,000 - ($300 + $500) = $200. In the small country case, the price of good F becomes $1,000(1 + 0.20) = $1,200. The price of input A becomes $300(1 + 0.20) = $360, and the price of input B becomes $500(1 + 0.30) = $650. Value added under protection is thus $1,200 - ($360 + $650) = $190. The ERP is therefore ($190 - $200)/$200 = minus 5 percent. The meaning of this ERP result is that the returns to the factors of production in the F industry as a whole have actually been reduced by 5 percent by the tariff structure, and there would be an incentive for the factors to leave this industry.

4. Probably not. For nominal tariffs, the problem of under- (over-) representation of high- (low-) tariff goods prevents precise measurement by a weighted average tariff, and an unweighted average tariff will obviously only be approximate. The use of world weights is not satisfactory conceptually, as it does not embody the country’s actual trade pattern. For effective tariffs, problems regarding the reliability of the relation of inputs to output occur (especially if the input coefficients are not fixed), in addition to the nominal tariff calculation problems. With respect to NTBs, these barriers would need to be identified clearly and then converted to tariff equivalents. This would require estimation of price and quantity impacts (that is, of demand and supply elasticities). Taking the various tariff and NTB problems together, the best efforts to calculate an
average level of protection will only produce approximations. In addition, all tariff and nontariff barrier calculations are made more difficult if the importing country is a “large” country, for then an estimate must be made of the levels of world prices of the various imports if there were no import restrictions in place. Finally, if the various errors and omissions are

roughly of the same relative magnitude over time, more certainty can be attached to the trends shown by the protection indexes than to the calculated levels of protection themselves.

5. The ERPs for the country’s final goods industries will increase, meaning that these production processes are protected to an even greater extent than previously. Trading partners sending final goods to the country would regard this action as a move in the direction of less willingness to trade rather than in the direction of greater willingness to trade.

6. The VIEs are often not truly “voluntary” in that pressure is being applied from trading partners for the home country (such as Japan) to reduce its trade surplus by allowing more imports. More imports could be generated if the home country, for example, reduces its levels of specific and ad valorem tariffs, enlarges the quantities permitted under import quotas, extends offshore assembly provisions to apply to more goods, subsidizes imports themselves, or permits more foreign company bidding on government procurement contracts. Of course, macroeconomic measures to stimulate the home economy could induce more imports, but macro policy is not discussed in this chapter.

7. (a) The unweighted average nominal tariff is equal to:

$$0.10 + 0.05 + 0 + 0.30 + 0.02 + 0.025 + 0.15 + \frac{(0.50/4.00)}{10} + 0.40 + \frac{(2.50/10.00)}{10} = 1.42/10 = 0.142 \text{ or } 14.2 \text{ percent}$$

(b) The weighted average nominal tariff is:

$$0.10\cdot($400) + 0.05\cdot($600) + 0\cdot($500) + 0.30\cdot($300) + 0.02\cdot($200) + 0.025\cdot($400) + 0.15\cdot($100) + 0.125\cdot($400) + 0.40\cdot($200) + 0.25\cdot($100)$$

$$\frac{\$400 + \$600 + \$500 + \$300 + \$200 + \$400 + \$100 + \$400 + \$200 + \$100}{344/3200} = 0.1075 \text{ or } 10.75 \text{ percent}$$

8. (a) The new unweighted average nominal tariff is equal to:

$$0.10 + 0.05 + 0 + 0.30 + 0.02 + 0.025 + 0.15 + \frac{(0.50/5.00)}{10} + 0.40 + \frac{(2.50/12.50)}{10} = 1.345/10 = 0.1345 \text{ or } 13.45 \text{ percent}$$

(b) The new weighted average nominal tariff is equal to:
0.10·($500) + 0.05·($750) + 0·($625) + 0.30·($375) + 0.02·($250) + 0.025·($500) + 0.15·($125) + 0.10·($500) + 0.40·($250) + 0.20·($125) + 0.15·($125) + 0.10·($500) + 0.40·($250) + 0.20·($125)

$500 + $750 + $625 + $375 + $250 + $500 + $125 + $500 + $250 + $125

= ($411.25/$4000) = 0.1028 or 10.28 percent

CHAPTER 14
THE IMPACT OF TRADE POLICIES

I. Outline

Introduction
Trade Restrictions in a Partial Equilibrium Setting: The Small Country Case
   - The Impact of an Import Tariff
   - The Impact of an Import Quota and a Subsidy to Import-Competing Production
     -- The Import Quota
     -- Subsidy to an Import-Competing Industry
   - The Impact of Protection in a Market with Nonhomogeneous Goods
   - The Impact of Export Policies
     -- The Impact of an Export Tax
     -- The Impact of an Export Quota
     -- The Effects of an Export Subsidy

Trade Restrictions in a Partial Equilibrium Setting: The Large Country Case
   - Framework for Analysis
     -- Demand for Imports Schedule
     -- Supply of Exports Schedule
   - The Impact of an Import Tariff
   - The Impact of an Import Quota
   - The VER
   - The Impact of Export Taxes
   - The Impact of an Export Subsidy

Trade Restrictions in a General Equilibrium Setting
   - Protection in the Small Country Case
   - Protection in the Large Country Case

Other Effects of Protection
Summary

II. Special Chapter Features

Box 1: The Impact of a Tariff in the Case of Nonhomogeneous Goods
Case Study 1: The Effects of Protection in the U.S. Textile Industry
Case Study 2: Welfare Costs of U.S. Import Quotas/VERs
Case Study 3: The U.S. Export Enhancement Program for Wheat
Case Study 4: Domestic Effects of the Sugar Quota System
III. *Purpose of Chapter*

The purpose of this chapter is to explain how trade restrictions affect a country so that the costs and benefits of this type of policy action can be more fully understood.

IV. *Answers to End-of-Chapter Questions and Problems*

1. The winners are:
   
   Producers = (2,000)($1.20) + (0.5)(300)($1.20)  
   = $2,580  
   
   Government = (200)($1.20) = $240

   The losers are:
   
   Consumers = (2,500)($1.20) + (0.5)(100)($1.20)  
   = $3,060

   Society’s deadweight losses = (0.5)(300)($1.20) + (0.5)(100)($1.20) = $240; also =  
   ($3,060 - $2,580 - $240) = $240

2. An equivalent subsidy would shift the supply curve down vertically by $1.20. Producers would thus be willing to supply 2,300 units at the world price of $12, consumers would continue to demand 2,600 units, and imports would fall from 600 to 300 units. In this instance, there would be no loss in consumer surplus because the consumer price does not change. Producers would again gain producer surplus equal to $2,580, there would be a deadweight production efficiency loss (society’s total deadweight loss) of $180, and the entire subsidy program would cost the taxpayers (consumers?) $2,760. If the consumers are the taxpayers, they should prefer the subsidy program at a cost of $2,760 in taxes to the loss of consumer surplus under the tariff of $3,060.

3. A quota differs from a tariff in that the quantity of imports is fixed and domestic price adjusts, whereas, with a tariff, the domestic price is altered and quantity adjusts. The effects on consumers and producers of a quota are analogous to those of an equivalent tariff. However, there is no tariff revenue generated for the government. The equivalent of the tariff revenue which is generated with a quota (often referred to as the quota rent) can go to the government if the right to import (the quota rights) are auctioned off by the government. If the government does not sell the quota import rights, the quota rent can go to organized foreign producers in the form of higher selling prices, to domestic importing firms as they buy at the lower international price and sell at the higher market-clearing domestic price, or some combination of the two.

4. You would prefer the quota because in this instance you would receive the benefits of the growth in demand via higher domestic prices and sales without any accompanying increase in imports. With the tariff or subsidy, at least some of the benefits of growth in the domestic market would accrue to foreign producers in the form of increased foreign exports. A quota also
provides greater market certainty for producers.

5. An export tax effectively lowers the price received by producers for their product. They are thus willing to sell at a lower price in the domestic market, as opposed to exporting the good and paying the tax, up to the point where the domestic price is equal to the international price less the export tax. This leads to an increase in domestic quantity demanded, a decrease in domestic quantity supplied, and a decrease in exports. An export subsidy, on the other hand, effectively raises the price received by producers for their exports. They consequently raise the domestic price until it is equal to the international price plus the subsidy per unit, which leads to a decrease in quantity demanded at home, an increase in home quantity supplied, and an increase in exports. Domestic consumers would clearly prefer the export tax to the export subsidy.

6. Use of trade restrictions for the small country clearly involves net social losses. The large country can, however, influence world price by its trade policy. The imposition of a tariff in the large-country case reduces the demand for the import good and hence world price, i.e., some of the tariff is passed on to foreign producers through lower international prices. Consequently, the deadweight losses for the tariff-imposing large country will be smaller than for the small country. It is possible that the large country might even experience a gain if the tariff revenue effectively paid by the exporting countries through lower prices is larger than the deadweight losses incurred in the tariff-imposing large country through higher domestic prices.

7. The relevant graph is Figure 15 in the text. The loss in real income due to the tariff is shown by the inward shift of the consumption-possibilities curve (the international terms of trade line) as a result of the tariff-induced change in domestic prices and production (the shift in the production point from \( B_0 \) to \( B_1 \)). The accompanying loss in consumer well-being due to the tariff is shown by the movement from \( C_0 \) on \( IC_0 \) to \( C_1 \) on \( IC_1 \). Consumer loss would be reduced if an equivalent subsidy were used instead of the tariff. In this case consumers would continue to face international prices and would consume at point \( C_2 \) on \( IC_2 \).

8. Assessment could be best carried out through use of a graph of the U.S. import market for Chinese textiles. The new agreement means that the vertical import supply curve with the quota will now shift out less far each year than would otherwise have been the case. Hence, for given demand conditions, price to U.S. consumers will be higher and quantity of imports will be lower than otherwise. The deadweight loss for U.S. consumers will be larger with the new agreement than with the old. In addition, another factor working to reduce U.S. consumer surplus is that, if there is less transshipment by China through third countries, imports will fall and prices will rise for the textile products coming from those countries. Other considerations to include would be elasticity of demand, the extent to which U.S. demand is growing over time, etc.

9. The export subsidy is more costly in the case of the large country because it not only has to bear the cost of the subsidy, but also ends up exporting a smaller quantity at a lower international price. The total cost of the subsidy is thus larger than in the small country case (where international prices remain constant).
10. Consumers pay twice for subsidized exports in that they not only pay a higher domestic price for the subsidized export good, but also (as taxpayers) the higher taxes to pay the cost of the subsidy. They thus suffer both a loss in consumer surplus (through higher domestic prices) and a loss in after-tax income.

11. The changes in domestic quantity demanded and supplied can be calculated using the supply and demand elasticities and the increase in domestic price resulting from the 10 percent tariff.

\[
\text{The percentage change in quantity supplied} = (0.10)(\text{elasticity of supply}) = (0.10)(1.6) = 16\% \\
\text{The change in quantity supplied} = (0.16)(500) = 80 \\
\text{The new quantity supplied} = 500 + 80 = 580
\]

\[
\text{The percentage change in quantity demanded} = (0.10)(\text{elasticity of demand}) = (0.10)(-2.0) = -20\% \\
\text{The change in quantity demanded} = (800)(-0.20) = -160 \\
\text{The new quantity demanded} = 800 - 160 = 640
\]

\[
\text{The new domestic price} = ($8.00)(1.10) = $8.80
\]

Placing this information along with the initial market information provide in the question, the familiar partial equilibrium analysis can be carried out. (See the diagram below.)

price ($) (not drawn to scale)

\[
\begin{align*}
8.80 & \quad \text{P}_{\text{int}} (1 + t) \\
8.00 & \quad \text{P}_{\text{int}}
\end{align*}
\]

\[
0 \quad 500 \quad 580 \quad 640 \quad 800 \quad \text{quantity}
\]

The loss in consumer surplus = \((0.80)(640) + (\frac{1}{2})(0.80)(160) = $576
The gain in producer surplus = \((0.80)(500) + (\frac{1}{2})(0.80)(80) = $432
The gain in government revenue = \((0.80)(48) = $48
The deadweight losses = (\frac{1}{2})(0.80)(160) + (\frac{1}{2})(0.80)(80) = $96

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CHAPTER 15
TRADITIONAL ARGUMENTS FOR PROTECTION

I. Outline

Introduction
The Infant Industry Argument for Protection
The Terms-of-Trade Argument for Protection
Tariff to Reduce Aggregate Unemployment
Tariff to Increase Employment in a Particular Industry
Tariff to Offset Foreign Dumping
Tariff to Offset a Foreign Subsidy
Tariff to Benefit a Scarce Factor of Production
National Defense Argument for a Tariff
Tariff to Improve the Balance of Trade
Summary

II. Special Chapter Features

Case Study 1: U.S. Motorcycles - A Successful Infant Industry?
Box 1: Determination of the Optimum Tariff Rate
Case Study 2: Terms-of-Trade Effects of U.S. and Japanese Tariffs
Case Study 3: Costs of Protecting Industry Employment
Case Study 4: Recent Antidumping Actions

III. Purpose of Chapter

The purpose of this chapter is to present and assess some long-standing arguments for protection. It is particularly hoped that students will learn to think in terms of benefits and costs and in terms of “who gains?” and “who loses?” when encountering these and other arguments in the press and in everyday discussion.

IV. Answers to End-of Chapter Questions and Problems
1. No. The reduced costs per unit and ultimately lower consumer prices can then potentially be realized (if they have not already been realized) by the foreign producer as that producer sells to the domestic market (and other markets) under a free-trade regime. Protection for the home firm would achieve no greater cost reductions than would free trade. In fact, protection could reduce world welfare by generating excess capacity in the industry for the world as a whole. Although the protection might result in a shift of any possible “external” benefits from the foreign country to the home country, this would not necessarily improve world welfare.

2. Yes, the results will be the same. The resulting offer curve shift and the consequent impacts on relative world prices, relative domestic prices, and resource allocation will theoretically be identical with the export tax and the import tariff. This is the Lerner Symmetry Theorem.

3. The negative effects on domestic employment caused by foreign retaliation, reduced national income abroad, home currency appreciation, and so forth could, if strong enough, outweigh any immediate positive domestic employment effects.

4. The use of a tariff will raise the price of imports of the good, and the price of the domestically-produced good will also rise as home demand switches toward it. Thus consumers will have their well-being reduced because they will be paying more for each unit of the good and will be buying a smaller quantity because of the higher price. A subsidy given to domestic producers, equal to the per-unit difference between home cost of production and the world price of imports, will cause the domestic industry to expand and provide jobs without having to raise price, and imports will not go up in price because there is no tariff. Consequently, consumers are not injured. Although taxes will need to be levied to finance the subsidy, the taxes are only paid on the units of the good that are produced at home, while the higher price paid when the tariff was used applied both to domestic production and imports.

5. No. The dumping can simply reflect price discrimination by the foreign producer, whereby a lower price is being charged in the importing (home) country than in the foreign exporting country. If the foreign firm is not a price taker, if demand is more elastic in the home country than in the foreign country, and if the markets can be kept separate (e.g., by transportation costs), then such price discrimination maximizes profits. There is no necessary reason for a foreign government subsidy to occur.

6. In the Heckscher-Ohlin context, the relative return to the abundant factor falls. For example, if the scarce factor is labor and the abundant factor is capital, the rise in the wage rate \(w\) because of the tariff will clearly cause the rate of return to capital \(r\) relative to \(w\) to fall if there is no compensating rise in \(r\). In fact, \(r\) itself will fall absolutely. With the imposition of the tariff, domestic production switches toward the labor-intensive import-substitute good and away from the capital-intensive export good. Since more capital relative to labor is being released by the contracting export industry than is being demanded by the expanding import-substitute
industry, the price of capital must fall in order to restore full employment of capital. This increases the capital/labor ratio in each industry and, because each unit of capital has less labor to work with, capital’s productivity and real return must decline.

7. Smith was suggesting that, even though there are economic welfare costs associated with a tariff, the benefits of political survival and preservation of the nation-state through protection of industries vital for national security outweigh the economic welfare costs. This does not address, however, the problems of assessing which industries are “vital,” and it does not consider alternative policies that might be used to maintain those industries.

8. This statement can be evaluated in the framework of the discussion at the end of the chapter. Exports would be very unlikely to remain unaffected. Further, in the context of the macroeconomic interpretation of a trade deficit, there would not be an improvement in the trade balance unless the tariff increased income relative to spending (C + I + G).

9. This is clearly a matter of opinion. The new restrictions are a nontariff barrier that will provide some insulation for Canadian periodicals publishers from foreign competition. Hence, there will be deadweight losses for Canada. But whether the economic costs are greater than the subjective benefits from preserving “cultural expression” cannot be meaningful assessed; Canadians will differ on the extent to which they value cultural expression. Of course, there is the further matter of whether the Canadian editions of the foreign magazines might have been produced with the assistance of Canadian nationals; if so, these editions might not undermine Canadian cultural expression to any great extent.
CHAPTER 16
STRATEGIC APPROACHES TO TRADE POLICY INTERVENTION

I. Outline

Introduction
Tariff to Extract Foreign Monopoly Profit
Economies of Scale in a Duopoly Framework
Research and Development and Sales of a Home Firm
Export Subsidy in Duopoly
Summary
Appendix: An Export Subsidy and Home Firm Profit

II. Special Chapter Features

Case Study 1: “Targeting” of Industries in Japan
Case Study 2: Airbus Industrie

III. Purpose of Chapter

The purpose of this chapter is to acquaint students with several recent approaches to protection, approaches that are cast in a framework where departures from the competitive trade model exist. Since many industries are clearly not “competitive” in the traditional microeconomic sense and since the newer approaches have received some attention in the press, an understanding of the arguments can be of practical use.

IV. Answers to End-of-Chapter Questions and Problems

1. Consider Figure 1 in the text. For a given tariff $t$ and a given starting point, the transfer of foreign profit will be less if demand is more elastic, since distance $c_1c_2$ will be the same but the new quantity of imports $(0q_i)$ will be smaller. Other things equal, this would diminish the size of any home country welfare improvement because of the tariff. The loss in consumer surplus will also be smaller and, at the limit (perfectly elastic demand), equal to zero. However, since greater elasticity reduces both the transfer of profit and the loss in consumer surplus, it is not possible to
determine any general relationship of demand elasticity to the net welfare gain of the home country from the tariff.

2. No. The higher domestic price caused by the tariff could lead to entry into the industry by home firms responding to a greater potential profit opportunity.

3. No, Krugman’s results would not follow. Turn to Figure 3 in the text. In Figure 3(a), the MM curve would slope upward. Protection would cause QQ to shift to the right and would lead to an increase in marginal cost. In Figure 3(b) the result would be a shift of home firm reaction function HH to the left and, with no change in foreign firm reaction function FF, the home firm’s sales in the export market would fall and the foreign firm’s sales would rise. If the foreign firm’s counterpart schedule to MM also sloped upward, the home protection would also lead to an upward shift in FF, which would reinforce these export market share results.

4. Applied research is taking place because R&D affects marginal cost, meaning that the fruits of R&D are being applied to the production process.

5. Consider Figure 2 in the text and suppose that the H and F labels are switched. If point C is the starting point, the foreign firm is satisfied but the home firm is not since, with 0X₂* of foreign sales, the home firm only wants to sell quantity 0X₁ (instead of 0X₂). The sales combination of the two firms will then move from point C to point B, where the home firm is at its profit-maximizing level, given 0X₂* of foreign sales. However, at B, the foreign firm will want to sell the larger quantity 0X₁* rather than 0X₂*, so movement takes place to point A. This process continues, driving the firms further away from the equilibrium position E.

6. Yes, the foreign firm will always produce because it makes a profit by doing so, no matter what the home firm does. No, the home firm will not produce the good. Since the foreign firm always produces, the home firm will elect zero profit rather than a $30 million loss.

7. Yes, the production pattern will change. The home firm will now receive $20 million profit if it produces at the same time that the foreign firm produces, and $150 million profit if it produces and the foreign firm does not. Since the foreign firm will still produce despite its reduction in profit from $140 million to $20 million, the production pattern is that both firms are now engaged in supplying the good to the market. However, the subsidy reduces welfare in the home country, since the home firm’s $20 million profit is financed by a $50 million subsidy, implying a $50 million burden on home country taxpayers.

8. (a) $19.
   (b) $21.
   (c) Home country consumer surplus falls by

\[
($21 - $19)(10) + \left(\frac{1}{2}\right)($21 - $19)(14 - 10) = 24
\]

or

55
\[
(\frac{1}{2})(21 - 19)(14 + 10) = 24.
\]

(d) \((16 - 12)(10 - 0) = 40.\)
(e) The home country “gains” welfare of \((40 - 24) = 16.\)

9. This is an “opinion” question. However, the student should recognize that foreign retaliation will reduce if not eliminate any potential welfare gains to the home country from employing these theories as practical guidelines for protection. Also, examination of the opportunity costs of resources being drawn into the home industry would need to be undertaken.

In practice, of course, overly-zealous protectionist legislators may use the theories in situations where it is not clear that the theories apply.

10. Consider home firm sales of \(0X_0\) in Figure 8. If the foreign firm is selling \(0X_2^*\) of the good when the home firm is selling \(0X_0\), the home firm obtains profit level \(\pi_2\) (at point G). However, if the home firm’s profit level were \(\pi_1\) when selling \(0X_0\), this would mean that the foreign firm is selling less than quantity \(0X_2^*\). Because the foreign firm is selling less in this market at home firm profit level \(\pi_1\) than at home firm profit level \(\pi_2\), other things equal, product price must be higher at \(\pi_1\) than at \(\pi_2\) because there is less total quantity in the market. With a higher price and the same home firm sales of \(0X_0\), the home firm’s profit level with the \(\pi_1\) isoprofit curve must therefore be higher than with the \(\pi_2\) isoprofit curve. Hence, the “lower” curve \(\pi_1\) is associated with greater home firm profit than is the “higher” curve \(\pi_2\).

The reaction function of the home firm shows the sales levels of the home firm that maximize home firm profit, given various levels of sales of the foreign firm. Consider sales level \(0X_2^*\) of the foreign firm. If the home firm operates at the “peak” of the isoprofit curve \(\pi_1\) (at point B), it will sell amount \(0X_2\) in this market (and of course will be realizing profit of \(\pi_1\)). If the home firm sold any amount less than or more than \(0X_2\), it would be operating on isoprofit curves that intersected the dashed horizontal line emanating from \(0X_2^*\) (the line \(X_2^*GBJK\) in the graph, which could continue to the right beyond K). Any of these isoprofit lines intersecting \(X_2^*GBJK\) would have to be graphically “above” the \(\pi_1\) curve, and thus they would be associated with a lower level of profit than \(\pi_1\). Therefore, the “peak” point B is on the home firm’s reaction function because it represents the sales level of the home firm that maximizes the home firm’s profit, given foreign sales of \(0X_2^*\). A similar analysis could be done for the “peak” points for all other home firm isoprofit curves. Hence, the reaction function for the home firm passes through the “peak” points (and only the “peak” points) of the isoprofit curves.
CHAPTER 17
POLITICAL ECONOMY AND RECENT U.S. TRADE POLICY

I. Outline

Introduction
The Political Economy of Trade Policy
- The Self-Interest Approach to Trade Policy
- The Social Objectives Approach
A Review of U.S. Trade Policy
- Reciprocal Trade Agreements and Early GATT Rounds
- The Kennedy Round of Trade Negotiations
- The Tokyo Round of Trade Negotiations
- The Uruguay Round of Trade Negotiations
  -- The First Four Years, 1986-1990
  -- Continued Negotiations Lead to Success, 1993
  -- Provisions of the Uruguay Round Agreement
- Other Trade Policy Actions
  -- Selected Policy Actions in the 1980s and Early 1990s
  -- Trade Policy under the Clinton Administration
Concluding Observations on Trade Policy
- The Conduct of Trade Policy
- Empirical Work on Political Economy
Summary

II. Special Chapter Features

Case Study 1: Politics Puts the Squeeze on Tomato Imports
Case Study 2: Sectoral Employment Impacts of Tokyo Round Trade Liberalization
Case Study 3: Intervention and Distortions in Agriculture
Case Study 4: Restraints on U.S. Steel Imports
III. Purpose of Chapter

The purpose of this chapter is two-fold - first, to introduce students to the political economy of trade policy and, second, to provide an overview of contemporary U.S. trade policy, focusing on recent developments.

IV. Answers to End-of-Chapter Questions and Problems

1. Legislation favored by a minority may in fact be enacted if the majority simply does not actively participate in the voting process. This may occur because the costs of acquiring information and voting are sufficiently great so that a large group of voters simply chooses not to participate. A second reason this result could come about is simply because a large number of voters feel that their one vote does not really make a difference or “swing” the result and are simply willing to accept the political result. In either case, the non-participating voter is simply acting as a “free-rider,” avoiding the costs of participation and accepting whatever result comes about based on those who are actively participating. Since members of minority interest groups often have more intense interest in and/or more to gain by influencing the political outcome, it is not uncommon to see an outcome that is not consistent with the median-voter approach.

2. Bilateral trade negotiations are superior in that there is greater likelihood of two countries reaching an agreement on reducing trade restrictions than for many countries reaching such an agreement. It is also easier to target certain commodities or policy objectives and/or tailor the trade package to the particular interests of the two countries involved. It makes equal policy reciprocity easier to put into play. On the other hand, the fact that successful multilateral negotiations represent a more significant move toward freer trade means that the potential welfare gains would be greater. There is also the possibility that certain countries might “go along” with the reduction in trade restrictions if every other member of GATT is participating whereas they might be more reluctant on a bilateral basis, i.e., a “rules-based” trade policy is established with the multilateral negotiations.

3. The presence of protection on consumer goods such as textiles and clothing has continued over the years even though it has been extremely costly to the consumer. This has come about for several reasons. First, the impact of protection on consumer prices is not transparent, i.e., not clearly apparent to the consumer. The average consumer has little idea of the higher price being paid for the merchandise because of the various instruments of protection on textiles and apparel. Secondly, not only are consumers not knowledgeable of the impact of protection, they also are not sufficiently organized as a group to influence the political process. Further, there is a strong regional aspect associated with these particular products which provides additional political leverage in Congressional negotiations. For example, the textile/apparel lobby is very well organized and strong, particularly on a regional basis. Thus, the potential winners, textile owners and textile labor, have successfully argued for protection over the years on a social objectives platform (personal and regional income) at the considerable expense of consumers at large.
4. Concern by the government for the relative income position of a particular group or segment of the economy can foster protection in several ways. First, the government may be less willing to reduce protection of the products which are central to the income of these groups. This is particularly true if there is little support for adopting a direct form of income transfers to these groups if increased trade and the resulting structural change threaten their relative economic well-being. Further, once it is observed that the government will step in with trade restrictions, members of this group will likely become less concerned with efficiency and quality considerations and require increasing amounts of protection to maintain their relative income position. In addition, the knowledge of how the government treats one group may well foster similar behavior on the part of other groups who feel threatened by increased trade. Thus, protection based on a social objective like income distribution not only can result in a short-run policy, but also can produce an environment within which continued and often increasing protection will be a necessary norm. Concern with an issue like income distribution need not result in maintaining or even increasing protection and economic inefficiency. Rather than using an indirect method such as trade restrictions to influence the incomes of the groups under consideration, it is far better to adopt policy instruments that deal directly with those in need of support. Direct income transfers to those truly in need will not only be a much more effective way to meet income needs, they would also be much less costly to the economy and consumers/taxpayers than restricting trade.

5. (a) From an economic perspective, TAA should facilitate the movement of resources away from comparative disadvantage industries and towards comparative advantage industries. Since this would make factors less “specific” in nature, it should enhance the short/medium-term gains from trade. The difficulties include such things as funding for the program and being able to ascertain whether the unemployment or profitability problems are due to changes in the trade environment or are simply the results of poor firm management.

(b) This should not rule out the use of TAA as a desirable policy. If funds for this type of adjustment, both domestic and trade-related, are insufficient, then the funds should be allocated between the two sources of factor rigidity based on a marginal cost/marginal benefit analysis with the available funds going where the potential net gains appear to be the greatest. In addition, a case can specifically be made for TAA because trade adjustment is distinct from domestic competition adjustment in that the government has changed the “rules of the game” for trade-related firms by altering trade barriers.

6. From a policy perspective, the impact of taxes such as tariffs is relatively well-known and quite easily understood. There tends to be more general support for policy changes that clearly reduce consumer prices. NTBs are, however, less well-understood by and less transparent to the public at large, and there is considerable industry pressure for trade policies (such as quotas or VERs) that seem to have a more certain outcome for the pressure groups. Also, in a growing domestic market, a quota is more appealing to the protected firm than is a tariff because, with the growth in demand, no additional imports are permitted with a quota whereas more imports come in with a tariff.
7. (a) The case for nonreciprocity for the developing countries would logically be built along the lines of an infant industry argument for protection. Until the industries gain experience and sufficient scale economies, they should receive preferential treatment by the developed countries and should be able to protect their own industries until they have attained a cost of production consistent with their comparative advantage. Of course, a normative case can also be built along the lines of giving assistance to poorer countries in the world economy.

(b) The use of the nonreciprocity principle tends to maintain an inefficient world production structure. Developing countries, presumably for domestic policy reasons such as greater employment, will use the principle to foster production not only in their comparative advantage industries, but also in industries where they might clearly never have a comparative advantage.

8. If all intervention in agriculture were dropped, then trade and production would reflect comparative advantage. Food prices would decline in those countries that previously had protection and rise in free-trade countries. Agricultural income would decline in the protected countries and rise in the unprotected countries. To the extent that developing countries tax farmers and developed countries subsidize farmers, a transfer of real income from developed countries to developing countries should also occur with removal of all agricultural restrictions in general. Finally, world welfare should rise with the movement to free trade.

9. With the imposition of the VER, product prices rise in the importing country. Consumers therefore suffer a loss in consumer surplus. In addition, with the VER, the quota rent (which would be received by the home government with the use of an equivalent tariff or with an auctioning of the quota rights under a domestically-imposed quota) goes to the exporting country.

10. The political economy of trade policy appears to be based on numerous factors. Considerations that seem to have some influence include such things as the size of labor adjustment costs, the concentration of import-competitive workers in regions or in congressional districts, and the size of contributions by organized labor to political campaigns. From a more technical standpoint, protection appears to be more likely for industries with high labor/output ratios, large absolute numbers of workers, and large numbers of unskilled workers. Negative associations have been noted for high wage industries and more competitive (many-firm) industries. Finally, protection appears to be more likely for traditional firms or firms that are viewed as being central to the existence of a strong manufacturing sector such as steel, textiles, etc.
CHAPTER 18
ECONOMIC INTEGRATION

I. Outline

Introduction
Types of Economic Integration
  - Free Trade Area
  - Customs Union
  - Common Market
  - Economic Union
The Static and Dynamic Effects of Economic Integration
  - Static Effects of Economic Integration
  - Dynamic Effects of Economic Integration
  - Summary of Economic Integration
The European Union
  - History and Structure
  - Growth and Disappointments
  - Completing the Internal Market
  - Prospects
Economic Disintegration in Central/Eastern Europe and the Former Soviet Union
  - Council for Mutual Economic Assistance
  - Moving toward a Market Economy
North American Economic Integration
  - Greater Integration
  - Worries over NAFTA
Other Major Economic Integration Efforts
  - MERCOSUR
  - FTAA
  - Chilean Trade Agreements
  - APEC
Summary

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II. Special Chapter Features

Case Study 1: Economic Integration Units
Box 1: Trade Diversion in General Equilibrium
Case Study 2: Trade Creation and Trade Diversion in the European Community
Case Study 3: The East African Community
Case Study 4: The Mexican Maquiladoras

III. Purpose of Chapter

The purpose of this chapter is to extend the study of trade policy to the situation of discriminatory policy regimes, exemplified by economic integration units such as free-trade areas and customs unions. To acquaint the student with real world economic integration, considerable attention is devoted to the history of and the continuing liberalization in the European Union. Coverage is also given to Eastern Europe, the former Soviet Union, and the North American Free Trade Agreement.

IV. Answers to End-of-Chapter Questions and Problems

1. This customs union has no possibilities for trade creation in the Viner sense, since the two countries have no common domestic industries for yielding displacement of a higher-cost domestic industry by a lower-cost partner supplier. However, there are great possibilities for trade diversion. Country A may switch its imports of raw materials and agricultural goods from a low-cost outside world producer to higher-cost B producers, and B may do likewise with respect to its imports of manufactured goods. The trade diversion could still be beneficial if consumption effects are strongly positive, say because of very high pre-union tariffs on outside-world products - although such tariffs would be unlikely in this situation. Of course, dynamic effects could be beneficial as the countries integrated into a larger, more diversified economic unit.

2. The reasoning behind this view is that, because the developing countries produce similar products, they are not likely to be sources for each other of new, different products vital to the development effort. Even granting the questionable assumption that the developing countries are “alike,” however, consideration of trade creation and trade diversion could lead to disagreement with this view of “little gain” from customs unions. Since similar items are being produced in the potential partners, there can be a likelihood of trade creation. In addition, trade diversion will be slight if the potential partners do not possess the capability for displacing the different products being supplied by the outside, developed world. Finally, there can be dynamic benefits from scale economies, etc., as well as potential collective terms-of-trade effects. All of these potential benefits assume, of course, that the developing countries can effectively agree on integration and can surmount the political and distributional difficulties associated with it.
3. The motivation was that the United States feared that Portugal and Spain would, through trade diversion, switch their purchases of some agricultural goods away from the United States and toward other EC members. The threatened U.S. duties were designed to get new exports from the United States to the EC to replace the diverted agricultural goods. The action could be supported on welfare grounds since it actually led to a reduction of some other EC trade barriers and hence to gains from the additional trade. If the action had not been successful and had led to retaliatory EC measures on the United States, welfare losses would have occurred.

4. By reducing (actually eliminating) tariffs only on developing-country goods coming into developed countries, the action is a discriminatory trade policy measure, as is the formation of an economic integration project. Trade can be “created” in that the new developing countries’ exports displace previous high-cost domestic production within any given GSP-granting developed country. The GSP also diverts imports from other developed countries into any given developed country, switching imports from a lower-cost to a higher-cost source (the developing countries) which was not exporting as much to the developed country with the uniform tariff structure.

5. Trade diversion against U.S. exports can occur as barriers within Europe are dismantled. Further, dynamic effects such as enhanced technology and scale economies may lead the EU to be a more formidable export threat in third-country markets as well as in the U.S. market. However, if the EU grows more rapidly, it can be in a position to purchase more U.S. goods. Also, U.S. foreign investors expanding into Europe may source their inputs from the United States. Whether or not one should be enthusiastic or worried obviously depends on the size of the costs to the United States relative to the benefits. Certainly greater growth in Europe can potentially benefit U.S. welfare, but, if the result of the integration is the formation of two hostile trading blocs (Europe and North America), there can be overall detrimental impacts.

6. It can be argued that the development of APEC alongside the efforts in the Western Hemisphere (e.g., NAFTA) represent a movement toward world free trade in that there are several members (Canada, Chile, Mexico, and the United States) that are participants in both APEC and integration efforts in the Western Hemisphere. For these countries their simultaneous participation in both movements represents a significantly greater step towards worldwide free trade and increased benefits of integration than do either of the movements alone. This follows from the knowledge that the net effects of integration are greater, the larger are the number of participants in free trade agreements and the larger the economic size of the participants.

7. Balancing trade within a product category does not permit inter-industry specialization, unless the category is a broad one within which there are genuine comparative advantages based on such phenomena as differing factor endowments. If the trade is intra-industry trade, there might be some product differentiation and economies-of-scale benefits. However, even then, the artificial prices and the forced balance make it extremely unlikely that the trade pattern resembles the composition and volumes that would exist if prices represented true opportunity costs and trade volumes were allowed to respond fully to these opportunity costs. Forced balance in total
trade between any two countries just exacerbates the situation - a country may have to import goods from a high-cost partner rather than from a low-cost partner simply to offset an export surplus with the high-cost partner. Trade according to comparative advantage in no way implies balanced trade with each trading partner in a multi-partner world. The monetary adjustment mechanism in trade models (such as the price-specie-flow mechanism) only implies balance with all trading partners in total, not with each partner individually.

8. U.S. workers, especially in labor-intensive industries, worry that freeing up trade with labor-abundant Mexico will cause the U.S. workers to lose their jobs or receive lower wages. These results are thought to be even more likely because U.S. firms will also switch production to Mexico because of the lower wages there. Hence, fears arise because of the perceived increased job/wage insecurity due to NAFTA. Other concerns have been raised about inadequate environmental protection and about “unfair” trade since Mexico’s labor standards are lower. In addition, with NAFTA, there is joint arbitration of some trade disputes by representatives of all three nations, and this feature has led to U.S. fears of loss of national sovereignty.

The second part of the question is clearly a judgment call on the part of the person answering the question. In the static sense, the trade creation effects of NAFTA must be compared to the trade diversion effects, taking into account any accompanying costs of adjustment. Of greater importance, however, are the dynamic effects which would accompany the increased trade among the three countries. Insofar as integration fosters greater efficiency and higher productivity through increased specialization, reduces problems of illegal migration with Mexico, increases consumer well-being through lower import prices, and is not accompanied by major structural adjustment problems, the benefits should clearly be positive.

9. (a) The basis for this statement is the fact that specific coalitions contain elements of both trade creation and trade diversion. The static effects of these coalitions can thus be negative if trade diversion effects are greater than trade creation effects, whereas no trade diversion effects occur with a general lowering of protection by everyone. In addition, there is the fear that once members of the coalition(s) have reduced tariffs with each other they will be less interested in further reductions in protection with non-members. There is also the fear that the new coalitions may actually raise their external tariffs to non-members, generating a group of trading blocs that would represent a movement away from freer trade.

(b) The establishment of new trading coalitions should be encouraged because they represent a clear first step towards freer world trade. This is particularly so if the coalitions adopt common external tariffs for non-members which are lower than those in existence in each country prior to their integration. Further, to the extent that there are economies of scale present, the larger coalition market will allow coalition members to produce goods more cheaply and thus have less need for protection in general. Finally, experiencing both the static and dynamic economic gains that accompany the smaller coalitions will make them more open to reducing trade barriers on a worldwide basis.
CHAPTER 19
INTERNATIONAL TRADE AND THE DEVELOPING COUNTRIES

I. Outline

Introduction
An Overview of the Developing Countries
The Role of Trade in Fostering Economic Development
- The Static Effects of Trade on Economic Development
- The Dynamic Effects of Trade on Development
- Export Instability
- Potential Causes of Export Instability
- Long-Run Terms-of-Trade Deterioration
  -- Differing Income Elasticities of Demand
  -- Unequal Market Power
  -- Technical Change
  -- Multinational Corporations and Transfer Pricing
Trade, Economic Growth, and Development: The Empirical Evidence
Trade Policy and the Developing Countries
- Policies to Stabilize Export Prices or Earnings
  -- International Buffer Stock Agreement
  -- International Export Quota Agreement
  -- Compensatory Financing
- Problems with International Commodity Agreements
  -- Are Effective ICAs Feasible?
  -- Are ICAs Desirable?
- Suggested Policies to Combat a Long-Run Deterioration in the Terms of Trade
  -- Export Diversification
  -- Export Cartels
  -- Import and Export Restrictions
  -- Economic Integration Projects
- “Inward-Looking” Versus “Outward-Looking” Trade Strategies

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II. Special Chapter Features

Box 1: Raul Prebisch (1901-1986); Hans Wolfgang Singer (born 1910)
Case Study 1: Price Distortions in Pakistani Agriculture

III. Purpose of Chapter

The purpose of this chapter is to review the general links between international trade and economic development and to summarize key problems that exist (or are alleged to exist) with respect to developing countries and their trade sector. Possible causes and consequences of the potential difficulties are examined. Policy options are considered that might help to obtain a more favorable contribution of trade to development and to accelerate growth in these less developed countries (LDCs).

IV. Answers to End-of-Chapter Questions and Problems

1. According to trade theory, countries should specialize in and export those goods and services that use relatively-intensively their relatively-abundant factor. Since the LDCs are often labor/land-abundant, the static gains from trade would result from their expanded production and trade in goods intensive in these factors. Their trading partners, the industrialized countries (ICs), would, on the other hand, be specializing in goods that are relatively intensive in capital. Thus, the gains from trade and the relative income distribution effects accompanying trade would tend to reward labor/land in the LDCs and capital in the ICs.

2. This question is obviously focusing on the dynamic gains from trade that are discussed early in the chapter. The dynamic effects of trade are related to such things as demonstration effects associated with exposure to new products and cultures, possible increased international investment, exposure to new technologies, economies of scale associated with enlarged production, benefits of increased competition (reduction in monopoly market leverage), etc.

3. These arguments focus on the static effects of international trade discussed in the first question. Following the dictates of comparative advantage, many developing countries could find themselves specializing in labor/land-intensive production rather than more capital-intensive production. Such a situation could lead to several problems. First, labor/land-intensive products often face lower income elasticities of demand than do capital-intensive manufactures. Consequently, the demand for labor/land-intensive products grows relatively more slowly and the countries producing these goods find their growth in exports lagging behind export growth in the
ICs. Further, the LDCs’ own demand for imports may outgrow their export growth, leading to balance-of-payments and debt problems. In addition, the low price elasticities of LDC export products tend to make LDC annual export revenues more erratic. Because of these production effects, LDCs may find themselves increasingly dependent upon foreign technology and international financing. Finally, by not focusing more on the use of capital, the consequent increase in labor productivity (and hence wages) is retarded and, relatively speaking, the gap in per capita income between the ICs and the LDCs may widen.

4. Basic reasons why export price (and earnings) instability is judged to be a problem are indicated in the chapter. Price instability seems more likely to occur in LDCs than in ICs because demand and supply elasticities are lower in LDCs, because shifts in the curves may be more frequent for LDCs, and because LDC exports are more heavily concentrated by commodity. These features reflect the relatively greater reliance on the export of primary products by the LDCs than by the ICs.

5. Main problems of the specific analysis are that the curves are linear and that, despite the difficulties of stabilizing, it is assumed that the buffer stock effectively pegs price at the mean value. In addition, the concepts of consumer and producer surplus hide distributional effects within the consuming and within the producing groups. Inadequate attention is also paid to the desirability of reducing risk, and a more complete analysis would also use the present values of the flows.

6. The long-run deterioration of the commodity terms of trade suggests that, other things equal, welfare is less for the LDCs than would otherwise be the case; for the ICs, it is greater, so there has in effect been a transfer of welfare to the ICs from the LDCs. A “worst case” of deterioration would be represented by the immiserizing-growth situation, where the outward shift of the PPF from an LDC’s growth results in such a deterioration of the terms of trade that the country ends up on a lower indifference curve after growth. However, the income terms of trade might have improved.

7. The diversification could mean that the price instability would be less because demand and supply curves for manufactured goods are generally more elastic than for primary products. Also, the diversification by definition would mean less of an “eggs in one basket” phenomenon. Regarding the terms-of-trade deterioration, diversification would mean movement into products with higher income elasticities of demand in the buying countries, and perhaps a greater ability by LDCs to avert downward wage movements associated with the unorganized labor markets in the primary product sector. With respect to the terms of trade, protection against the new LDC manufactured products might arise, which could offset the favorable effects of the higher income elasticities of demand.

8. If the larger market size generated by an economic integration project permits scale economies and efficient production, the LDCs might consequently diversify by exporting to each other (or even to the outside world). There could also be other dynamic effects such as the
attraction of foreign direct investment from the ICs. Further, if the same primary products are exported to the ICs by the member LDCs, some market power might now be exerted. With respect to static effects, trade diversion might outweigh trade creation if the LDCs began to produce some of the manufactured products formerly imported from ICs, but this may not be the result. (See the answer to End-of-Chapter Question #2 in Chapter 18 in this Instructor’s Manual.) The formation of the coalition might also mean lower quality, lower-tech manufactured goods imports than had previously been the case. Whether such LDC unions should be recommended depends on a more precise assessment of the effects in each situation, but a cautionary note is provided by past experience (such as with the East African and Central American Common Markets).