Overview of Section I:
International Trade Theory

Section I of the text is comprised of six chapters:

**Chapter 2**  World Trade: An Overview

**Chapter 3**  Labor Productivity and Comparative Advantage: The Ricardian Model

**Chapter 4**  Specific Factors and Income Distribution

**Chapter 5**  Resources and Trade: The Heckscher-Ohlin Model

**Chapter 6**  The Standard Trade Model

**Chapter 7**  External Economies of Scale and the International Location of Production

1. ◼ Section I Overview

Section I of the text presents the theory of international trade. The intent of this section is to explore
the motives for and implications of patterns of trade between countries. The presentation proceeds by introducing successively more general models of trade, where the generality is provided by increasing the number of factors used in production, by increasing the mobility of factors of production across sectors
of the economy, by introducing more general technologies applied to production, and by examining different types of market structure. Throughout Section I, policy concerns and current issues are used
to emphasize the relevance of the theory of international trade for interpreting and understanding our economy.

Chapter 2 gives a brief overview of world trade. In particular, it discusses what we know about the quantities and pattern of world trade today. The chapter uses the empirical relationship known as
the gravity model as a framework to describe trade. This framework describes trade as a function of the size of the economies involved and their distance. It can then be used to see where countries are trading more or less than expected. The chapter also notes the growth in world trade over the previous decades
and uses the previous era of globalization (pre-WWI) as context for today’s experience.

Chapter 3 introduces you to international trade theory through a framework known as the Ricardian model of trade. This model addresses the issue of why two countries would want to trade with each other. This model shows how mutually-beneficial trade arises when there are two countries, each with one factor of production which can be applied toward producing each of two goods. Key concepts are introduced, such as the production possibilities frontier, comparative advantage versus absolute advantage, gains from trade, relative prices, and relative wages across countries.

Chapter 4 introduces what is known as the classic Heckscher-Ohlin model of international trade. Using this framework, you can work through the effects of trade on wages, prices and output. Many important and intuitive results are derived in this chapter including: the Rybczynski Theorem, the Stolper-Samuelson Theorem, and the Factor Price Equalization Theorem. Implications of the Heckscher-Ohlin model for the pattern of trade among countries are discussed, as are the failures of empirical evidence to confirm
the predictions of the theory. The chapter also introduces questions of political economy in trade. One important reason for this addition to the model is to consider the effects of trade on income distribution.
This approach shows that while nations generally gain from international trade, it is quite possible that specific groups within these nations could be harmed by this trade. This discussion, and related questions about protectionism versus globalization, becomes broader and even more interesting as you work through the models and different assumptions of subsequent chapters.

Chapter 5 presents a general model of international trade which admits the models of the previous chapters as special cases. This “standard trade model” is depicted graphically by a general equilibrium trade model as applied to a small open economy. Relative demand and relative supply curves are used to analyze a variety of policy issues, such as the effects of economic growth, the transfer problem, and the effects of trade tariffs and production subsidies. The appendix to the chapter develops offer curve analysis.

While an extremely useful tool, the standard model of trade fails to account for some important aspects
of international trade. Specifically, while the factor proportions Heckscher-Ohlin theories explain some trade flows between countries, recent research in international economics has placed an increasing emphasis on economies of scale in production and imperfect competition among firms.

Chapter 6 presents models of international trade that reflect these developments. The chapter begins by reviewing the concept of monopolistic competition among firms, and then showing the gains from trade which arise in such imperfectly competitive markets. Next, internal and external economies of scale in production and comparative advantage are discussed. The chapter continues with a discussion of the importance of intra-industry trade, dumping, and external economies of production. The subject matter
of this chapter is important since it shows how gains from trade arise in ways that are not suggested by
the standard, more traditional models of international trade. The subject matter also is enlightening given the increased emphasis on intra-industry trade in industrialized countries.

Chapter 7 focuses on international factor mobility. This departs from previous chapters which assumed that the factors of production available for production within a country could not leave a country’s borders. Reasons for and the effects of international factor mobility are discussed in the context of a one-factor (labor) production and trade model. The analysis of the international mobility of labor motivates a further discussion of international mobility of capital. The international mobility of capital takes the form of international borrowing and lending. This facilitates the discussion of inter-temporal production choices and foreign direct investment behavior.

Chapter 2
World Trade: An Overview

1. ◼ Chapter Organization

Who Trades with Whom?

  Size Matters: the Gravity Model

  Using the Gravity Model: Looking for Anomalies

  Impediments to Trade: Distance, Barriers, and Borders

The Changing Pattern of World Trade

Has the World Gotten Smaller?

  What Do We Trade?

  Service Outsourcing

Do Old Rules Still Apply?

Summary

1. ◼ Key Themes

Before entering into a series of theoretical models that explain why countries trade across borders and the benefits of this trade (Chapters 3–11), Chapter 2 considers the pattern of world trade which we observe today. The core idea of the chapter is the empirical model known as the gravity model. The gravity
model is based on the observations that: (1) countries tend to trade with nearby economies and
(2) trade is proportional to country size. The model is called the gravity model as it is similar in form to the physics equation that describes the pull of one body on another as proportional to their size and distance.

The basic form of the gravity equation is *Tij*  *A* × *Yi* × *Yj*/*Dij*. The logic supporting this equation is that large countries have large incomes to spend on imports and produce a large quantity of goods to sell as exports. This means that the larger either trade partner, the larger the volume of trade between them. At the same time, the distance between two trade partners can substitute for the transport costs that they face as well as proxy for more intangible aspects of a trading relationship such as the ease of contact for firms. This model can be used to estimate the predicted trade between two countries and look for anomalies in trade patterns. The text shows an example where the gravity model can be used to demonstrate the importance of national borders in determining trade flows. According to many estimates, the border between the U.S. and Canada has the impact on trade equivalent to roughly 2000 miles of distance. Other factors, such as tariffs, trade agreements, and common language can all affect trade and can be incorporated into the gravity model.

The chapter also considers the way trade has evolved over time. While people often feel that globalization in the modern era is unprecedented, in fact, we are in the midst of second great wave of globalization. From the end of the 19th century to World War I, the economies of different countries were quite connected, with trade as a share of GDP higher in 1910 than in 1960. Only recently have trade levels surpassed pre-World War I trade. The nature of trade has changed, though. The majority of trade is in manufactured goods with agriculture and mineral products making up less than 20% of world trade. Even developing countries now primarily export manufactures. A century ago, more trade was in primary products as nations tended to trade for things that literally could not be grown or found at home. Today, the motivations for trade are varied and the products we trade are increasing in diversity. Despite increased complexity in modern international trade, the fundamental principles explaining trade at the dawn of the global era still apply today. The chapter concludes by focusing on one particular expansion of what is “tradable”—the increase in services trade. Modern information technology has greatly expanded what can be traded as the person staffing a call center, doing your accounting, or reading your X-ray can literally be half-way around the world. While still relatively rare, the potential for a large increase in service outsourcing is an important part of how trade will evolve in the coming decades. The next few chapters will explain the theory of why nations trade.

1. ◼ Answers to Textbook Problems

1. We saw that not only is GDP important in explaining how much two countries trade, but also, distance is crucial. Given its remoteness, Australia faces relatively high costs of transporting imports and exports, thereby reducing the attractiveness of trade. Since Canada has a border with a large economy (the U.S.) and Australia is not near any other major economy, it makes sense that Canada would be more open and Australia more self-reliant.

2. Mexico is quite close to the U.S., but it is far from the European Union (EU). So it makes sense that
it trades largely with the U.S. Brazil is far from both, so its trade is split between the two. Mexico trades more than Brazil in part because it is so close to a major economy (the U.S.) and in part because it is a member of a free trade agreement with a large economy (NAFTA). Brazil is farther away from any large economy and is in a free trade agreement with relatively small countries.

3. No, if every country’s GDP were to double, world trade would not quadruple. Consider a simple example with only two countries: A and B. Let country A have a GDP of $6 trillion and B have a GDP of $4 trillion. Furthermore, the share of world spending on each country’s production is proportional to each country’s share of world GDP (stated differently, the exponents on GDP in equation 2-2, *a* and *b* are both equal to 1). Thus, our example is characterized by the table below:

|  |  |  |
| --- | --- | --- |
| Country | GDP | Share of World Spending |
| A | $ 6 trillion | 60% |
| B | $4 trillion | 40% |

 Now let’s compute world trade flows in this example. Country A has an income of $6 trillion and spends 40% of that income on country B’s production. Thus exports from country B to country A are equal to $6\*40% = $2.4 trillion. Country B has an income of $4 trillion and spends 60% of this on country A’s production. Thus, exports from country A to country B are equal to $4\*60% = 2.4 trillion. Total world trade in this simple model is $2.4 + $2.4 = $4.8 trillion.

What happens if we double GDP in both countries? Now GDP in country A is $12 trillion and GDP in country B is $8 trillion. However, the share of world income (and spending) in each country has not changed. Thus, country A will still spend 40% of its income on country B products and country B will still spend 60% of its income on country A products. Exports from country B to country A are equal to $12\*40% = $4.8 trillion. Exports from country A to country B are $8\*60% = $4.8 trillion. Total trade is now equal to $4.8+$4.8 = $9.6 trillion. Looking at trade before and after the doubling of GDP, we see that total trade actually doubled, not quadrupled.

4. As the share of world GDP which belongs to East Asian economies grows, then in every trade relationship which involves an East Asian economy, the size of the East Asian economy has grown. This makes the trade relationships with East Asian countries larger over time. The logic is similar
for why the countries trade more with one another. Previously, they were quite small economies, meaning that their markets were too small to import a substantial amount. As they became more wealthy and the consumption demands of their populace rose, they were each able to import
more. Thus, while they previously had focused their exports to other rich nations, over time, they became part of the rich nation club and thus were targets for one another’s exports. Again, using
the gravity model, when South Korea and Taiwan were both small, the product of their GDPs was quite small, meaning despite their proximity, there was little trade between them. Now that they
have both grown considerably, their GDPs predict a considerable amount of trade.

5. As the chapter discusses, a century ago, much of world trade was in commodities that in many ways were climate or geography determined. Thus, the UK imported goods that it could not make itself. This meant importing things like cotton or rubber from countries in the Western Hemisphere or Asia. As the UK’s climate and natural resource endowments were fairly similar to those in the rest of Europe, it had less of a need to import from other European countries. In the aftermath of the Industrial Revolution, where manufacturing trade accelerated and has continued to expand with improvements in transportation and communications, it is not surprising that the UK would turn more to the nearby and large economies in Europe for much of its trade. This is a direct prediction of the gravity model.