International Trade and Finance, Part 1

International Trade and Finance, Part 1

Economics of International Trade

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Preface

International Trade and Finance is a unique series of open educational resources that connects world events to economic and financial analysis. This OER explores not only the economics of international trade but also the feasibility analysis for making decisions regarding international trade and the role such analysis plays in selecting appropriate trading partners. The series also explores the risks faced by international organizations in trade finance and the various financial tools available to mitigate them. Thus, the *International Trade and Finance* series covers three key areas in three parts:

- *Part 1: Economics of International Trade* (Chapters 1 to 8)
- *Part 2: Feasibility of International Trade* (Chapters 9 to 15)
- *Part 3: International Trade Finance* (Chapters 16 to 22)

Part 1: Economics of International Trade introduces readers to the benefits of the free movement of goods and services and the factors of production, such as capital and labour, for participating countries and the world. We also explore the protectionist policies that limit the international trade in goods and services and productive resources. Readers are introduced to the effects of several protectionist policies, such as tariffs, quotas, and economic integration, on economic well-being and to the conditions under which such policies can make individual countries better off economically. Some policies and practices, such as dumping and export subsidies, adopted by governments and domestic producers to encourage exports are also evaluated.

Part 2: Feasibility of International Trade introduces readers to multiple tools and frameworks for assessing whether an organization is ready to enter international markets and to help them select the correct market for their products and services. We also present various rules and regulations applicable to international trade and provide readers with links to online resources where they can learn about various government organizations that help businesses with international expansion.

Part 3: International Trade Finance introduces readers to the role of trade finance in international trade decisions. Organizations around the world face many financial challenges when they decide to go global, including non-payment, non-performance, currency risk, etc. The text sheds light on the role financial tools and international financial organizations play in mitigating these risks.

After reading the three parts of International Trade and Finance, students of international business will have a sound knowledge of these key concepts and their application in the real world.

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Introduction

Welcome to ***Part 1: Economics of International Trade*.** This OER discusses various economic concepts and applications of international trade.

Readers gain insight into the benefits of free trade by considering several theories. Despite the benefits of free trade, countries often adopt protectionist policies toward international trade. As such, this OER examines the effects of tariff and non-tariff barriers on the economic well-being of countries and the world. While protectionist policies are shown to be generally harmful, readers will consider some circumstances which can cause countries to be better off with such policies.

Import barriers and other protective measures may prove to be beneficial if countries are able to exercise significant influence over world prices, if external benefits are present in domestic production and employment, and if, in the context of regional economic integration, trade creation is greater than trade diversion and if the dynamic gains of a larger market (e.g., scale economies, increased investment, greater productivity) accrue.

Readers will also learn that the free movement of factors of production, such as labour and capital, can yield economic benefits for individual countries and the world in ways that are similar to international trade in goods and services. Such international movement of factors can be contentious and subject to national restrictions on their free flow, as in the case of trade.

Policies intended to increase exports – dumping and export subsidies – and their economic effects are also addressed. While these policies benefit importing countries, they are inefficient from the standpoint of the world. Accordingly, importing countries can retaliate with anti-dumping and countervailing duties. Such retaliation, however, may provoke retaliation by exporting countries in response.

Lastly, readers will recognize the potential for disputes among countries stemming from national policies toward international trade and factor movement. While mechanisms for the resolution of international disputes exist, the limits of their effectiveness are indicated.

International Trade and Finance – Part 1: Economics of International Trade was developed for use in **BUS73000 International Trade and Finance** in the International Business Management degree program at Conestoga College.

Features of this OER

Each chapter in *International Trade and Finance* is introduced with chapter-level **Learning Objectives** and a **Think About It!** box introducing the chapter's main themes, which may include a short **YouTube video**, a **Test Yourself** H5P quiz, or a set of **Reflection Questions**.

Think About It! boxes throughout the chapters give readers the opportunity to explore certain terms and ideas further, such as with videos or interactive H5Ps.

Let's Explore and **Review** boxes introduce external resources to help learners explore the foundations of a key concept or learn more about it.

Did You Know? boxes share interesting stories or supplemental information with readers.

Each chapter ends with a **Chapter Summary** based on the chapter's Learning Objectives and gives readers a chance to assess their learning with **Check Your Understanding** H5P quizzes.

Each part includes a complete **Glossary**, with **pop-up definitions** linked to terms used in context.

Acknowledgments

Land Acknowledgment

At Conestoga College, we would like to acknowledge that in Kitchener, Waterloo, Cambridge, and Brantford, we are located on the Haldimand Tract, the land promised to the Haudenosaunee people of Six Nations, which includes six miles on either side of the Grand River. This is the traditional territory of the Anishinaabe, Haudenosaunee, and Neutral peoples. Recognizing the land is an expression of gratitude and appreciation to those whose environment we reside in and a way of honouring the Indigenous people living and working on the ground for thousands of years.

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— Kenrick H. Jordan

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CHAPTER 1: INTRODUCTION TO ECONOMICS OF INTERNATIONAL TRADE

Chapter 1 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Define the term globalization and discuss its meaning and importance.
2. Recognize international trade and finance as distinct parts of international economics.
3. Explain the relationship between international trade and a nation's standard of living.
4. Use demand, supply, and markets to understand the basic theory of international trade.

Think About It!

Video: What Is Globalization?

Before reading this chapter, watch this video outlining the basic aspects of globalization.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=5#oembed-1

Source: CFR Education. (2019, June 18). *What is globalization? Understand our interconnected world* [Video]. YouTube. https://youtu.be/wLNp3kgBuuQ?si=nA3VInntzN64ZzS6

Reflection Questions

Before we begin, we encourage you to reflect on the following questions:

1. What are some aspects of globalization mentioned in the video that are new to you?
2. Can you identify how you (or someone you know) have benefited from globalization?
3. Can you think of ways in which you (or someone you know) have been hurt by globalization?
4. Do you think that governments should limit the extent to which their countries are engaged with other countries economically and in other ways?

Introduction

In this chapter, we provide a brief overview of globalization. We highlight the significance of international economics as a lens through which we can examine the cross-border movement of goods and services and factors of production, a prominent feature of globalization. Specifically, we discuss international trade and international finance as distinct areas of study within international economics. Drawing on some key conclusions of international economics, we show the relationship between openness to international trade and finance and a country's living standards. Last, we demonstrate how conventional demand and supply analysis helps us to understand how international trade and finance work, along with their expected benefits.

The video in the opening activity gives an orientation to the main aspects of globalization. It highlights the fact that the world is interconnected in many ways, including obvious ways, such as the movement of goods, resources, and ideas, as well as some not-so-obvious ways, such as the spread of diseases and financial crises. The video points out that globalization is not new, though some recent developments have increased its pace, scale, and scope. We also learn that globalization's effects are not uniform: There are always winners and losers. It suggests that governments have a choice as to the extent to which their countries should be involved with other countries.

1.1 Meaning and Importance of Globalization

Globalization is the process of increasing interdependence among national economies across the globe. Falling barriers to international trade and investment, along with technological change, have promoted globalization. Negotiations among member countries of the **General Agreement on Tariffs and Trade (GATT)** have cut tariffs on trade from about 60% during the 1930s to 2% to 4% today in advanced countries. Similarly, many countries have reduced or removed barriers to international flows of financial capital and foreign direct investment over the years. In addition, advances in transportation and in information and communication technology have lowered the costs of production, marketing, and distribution, making it easy for businesses to see the world as a single market for their products.

Several key dimensions of globalization are:

- growing international trade in goods and services
- rising cross-border financial flows
- increasing international **migration**
- a tendency toward economic and **cultural homogenization**
- a shift in economic activity towards private markets

Growing International Trade in Goods and Services

National economies have become increasingly linked through trade. International trade has grown at a much faster pace than world economic output. Over the past 50 years or so, total global economic activity, as measured by GDP, has increased by roughly 3% a year, while total world exports have grown by about 5% annually (World Bank, n.d.). This relatively fast rate of export growth is reflected in an increase in the share of exports in world GDP from 13% in 1970 to 31% in 2022 (see **Figure 1.1**). Much of this increase in global trade has been intra-industry trade, i.e., two-way trade in which a country exports and imports the same or similar products. For instance, the United States and Canada both export and import a significant amount of motor vehicles and motor vehicle parts. Intra-industry trade occurs more in manufactured products and among advanced countries. The expansion of international trade has also reflected growing intra-firm trade as multinational firms have spread their production and other activities across countries (Dicken, 2015).

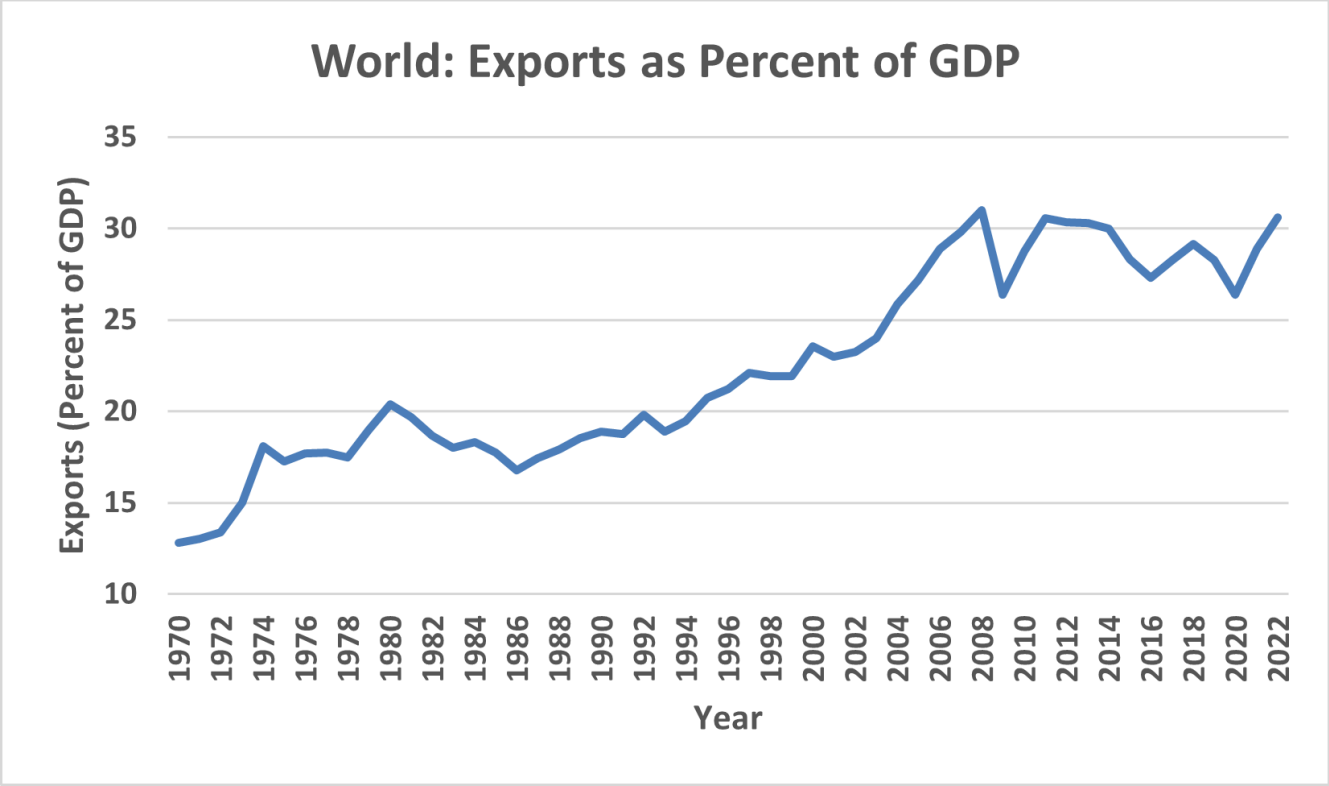

Figure 1.1: World Exports as Percent of GDP. *This figure highlights the growing significance of exports in global GDP. [See image description.]*
Source: *Based on data available from the World Bank, DataBank: World Development Indicators.*

Rising Cross-Border Financial Flows

National financial markets have become increasingly integrated as international investors move financial assets rapidly across the world in search of the highest rate of return. International financial flows have been very large – for instance, foreign exchange transactions totalled roughly US$ 7.5 trillion per day in 2022 (Bank for International Settlements, n.d.). Moreover, international financial flows have often been volatile, sometimes leading to large swings in currency values. In addition, foreign direct investment (FDI) has expanded as large and small multinational firms establish subsidiaries around the globe to take advantage of lower costs and emerging market opportunities. Over the past 40 years, the flow of foreign direct investment has grown at a much faster pace than world trade and world output (Hill et al., 2021). **Figure 1.2** shows that net inflows of foreign direct investment have risen as a share of world GDP from 0.5% in 1980 to about 2% in 2022.

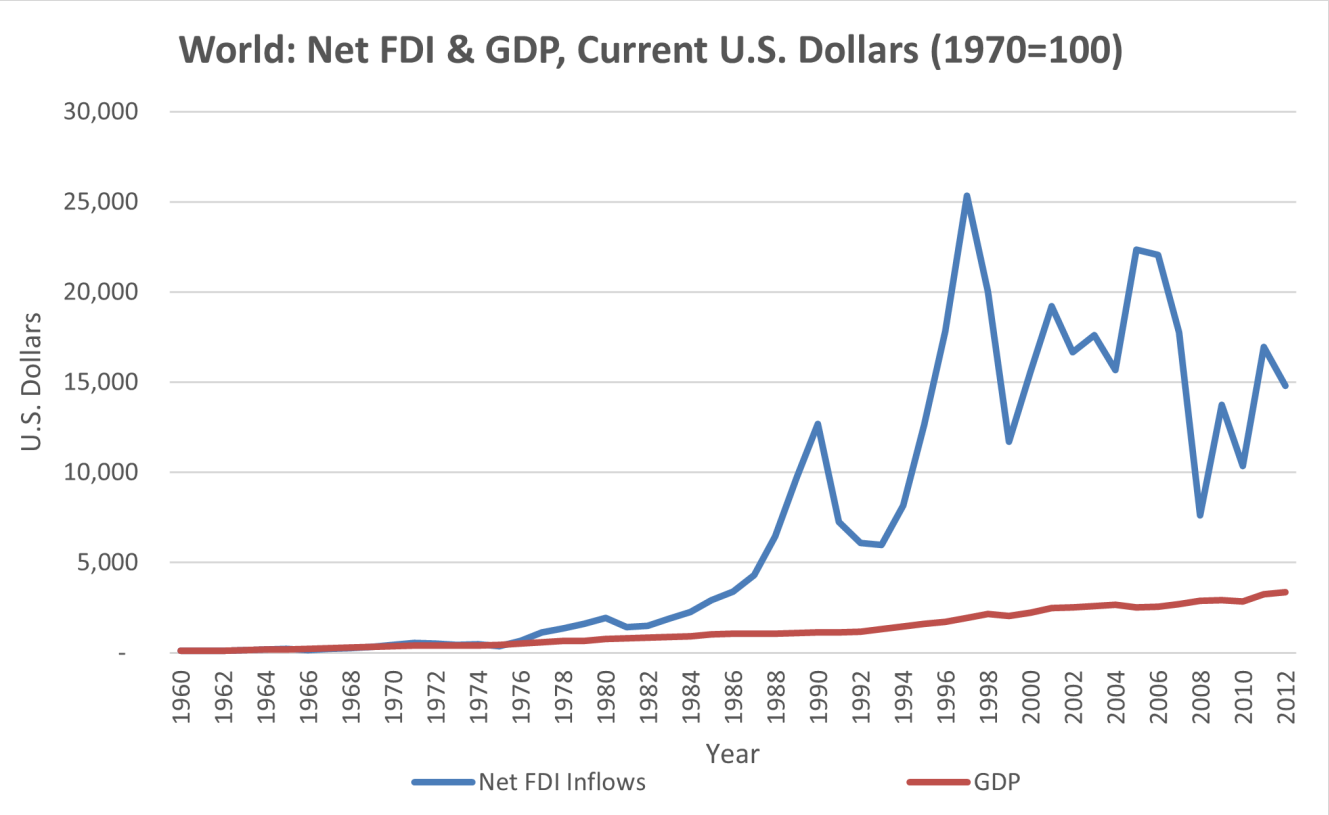

Figure 1.2: World: Net Inflows of Foreign Direct Investment as Percent of GDP. *This figure highlights the growing significance of FDI in global economic activity. [See image description].*
Source: *Based on data available from the World Bank, DataBank: World Development Indicators.*
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Increasing International Migration

Another facet of globalization is increasing international migration as people leave their countries of birth in search of better economic opportunities. It is estimated that 3% of the world's population lives outside of their country of birth (Pugel, 2020). For many advanced countries, the share of the non-native population is quite high – around 15% in the United States and close to 30% in Australia and Switzerland (Pugel, 2020). In the case of Canada, this share was about 22% in 2016 (Statistics Canada, 2017). Immigration has become increasingly contentious as low-skilled resident workers have lost jobs to migrants, and their wages have declined (Carbaugh, 2015). As a result, there have been growing calls in advanced countries for governments to restrict immigration.

A Tendency Toward Economic and Cultural Homogenization

Falling transportation and communications costs are encouraging the movement of products, people, and ideas around the globe. This is helping to make national economies and consumer tastes increasingly similar across countries (Hill et al., 2021; Dicken, 2015). The growing similarity of tastes is aided by the spread of cultural products from developed countries and by global corporations seeking to widen their markets and reduce their production, distribution, and marketing costs. As tastes converge, multinational firms will find it easier

to satisfy demand anywhere in the world through standardized products and services. Symbols of **cultural homogenization** include brands such as McDonalds, Starbucks, Apple, Netflix, and Nike, as well as Hollywood movies and global pop stars.

Shift in Economic Activity towards Free Markets and the Private Sector

As globalization has proceeded, the philosophy of free, private markets has become more prominent, as government regulations have been relaxed and government-owned businesses have been privatized. This trend is more obvious in developing countries where the public sector has often owned and operated businesses that account for substantial parts of their economies. Since the early 1980s, many developing countries have adopted outward-oriented trade policies. At the international level, this shift toward free markets has raised the influence of international agencies like the **World Bank** and the **International Monetary Fund (IMF)**. Specifically, the IMF has made the liberalization of restrictions on international trade and the privatization of government-owned enterprises conditions of its lending to developing countries.

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Image Descriptions

Figure 1.1: World Exports as Percent of GDP

The image is a line graph showing the trend of the world's exports as a percentage of gross domestic product (GDP) from 1970 to 2022. The x-axis represents the years, marked in increments of two years starting from 1970 and ending in 2022. The y-axis represents exports as a percentage of GDP, ranging from 10% to 35%, with markers at every 5%.

The graph features a single line that starts on the left side of the graph at just above the 15% mark in 1970. Initially, the line shows a relatively flat trend with minor undulations until the mid-1980s. From the mid-1980s, the line begins a steady ascent, interrupted by smaller peaks and troughs. This ascent continues, becoming

more pronounced from the early 2000s until it reaches a peak at slightly above the 30% mark around 2008. Following this peak, there is a sharp dip, which then recovers and stabilizes. Afterward, the line fluctuates slightly with a broadly upward trend until the end of the graph in 2022, where it sits around the 30% mark once again.

Throughout the graph, the line's path is smooth rather than jagged, suggesting a visualization of annual averages rather than monthly or daily figures.

[back]

Figure 1.2: World: Net Inflows of Foreign Direct Investment as Percent of GDP

The image features a line graph with an x-axis labelled "Year" from 1960 to 2012 in increments of 2 years and a y-axis labelled "U.S. Dollars" with values ranging from 0 to 30,000 in increments of 5,000. The title "World: Net FDI & GDP, Current U.S. Dollars (1970=100)" is positioned at the top of the graph. There are two lines representing different data sets: a blue line labelled "Net FDI Inflows" and a red line labelled "GDP." The blue line shows a volatile pattern with significant fluctuations, representing the net inflows of foreign direct investment (FDI) as a percentage of GDP, beginning at $0 in 1960 with a slow rise to the 1980s, then a series of peaks and valleys, with a high peak in 1996 above $25,000 and ending around $15,000 in 2012. The red line represents the GDP itself and is relatively flat, with a slight upward trend over the years, ending well below $5,000 in 2012.

[back]

1.2 International Trade and Finance as Parts of International Economics

As we have previously seen, increased international trade in goods and services and the international movement of productive resources like capital and labour are among the primary features of globalization. Associated with such international flows of products and resources is a set of international financial flows. *International economics* helps us to make sense of these real and financial flows. Specifically, international economics is a field of study that examines the implications of international trade in goods and services, international investment, and international lending and borrowing. Within international economics, there are two broad areas: the study of international trade and the study of international finance.

The study of *international trade* uses microeconomic models to examine why countries trade as well as the implications of trade for consumers, businesses, governments, the nation, and the world. Standard theories suggest that countries trade with each other because they have a **comparative advantage** in producing specific goods. That is, countries tend to export goods they can produce at a lower cost and import those they can only produce at a relatively high cost. Some alternative theories of trade consider **product differentiation** and **economies of scale** as important bases for trade. Since trade brings net benefits to participating countries and to the world, advocates of international trade generally argue in favour of free trade policies.

While there is broad agreement that free trade brings overall benefits, within nations that engage in free trade, some groups gain, and other groups lose. Specifically, domestic producers can suffer economic losses because of import competition and will often lobby governments for protection. The study of international trade has also identified some valid reasons for national governments to protect domestic industries from imports, such as to increase employment. Therefore, the study of international trade involves analyses of government policies such as import tariffs, non-tariff barriers, and production and export subsidies.

The study of *international finance* uses macroeconomic models to understand the domestic economy and the financial implications of its relationship with other countries. Therefore, international finance is concerned with financial flows among countries, reflecting trade in products, inward and outward foreign direct investment, and international borrowing and lending. Major areas of focus include the determinants of exchange rates, the performance of the economy, and the effectiveness of monetary and fiscal policies under different exchange rate systems. In international finance, macroeconomic models highlight the relationships among economic variables such as **gross domestic product (GDP)**, **unemployment**, **inflation**, **trade balances**, **exchange rates**, and **interest rates**.

International economics is a special field of study in economics. Because nations are sovereign, each can adopt its own policies to serve its national interest or the interests of specific groups within the economy. As such, there is no international entity that can effectively govern the global economy. While there are international institutions (e.g., the **IMF**, the **World Bank**, the **World Trade Organization**) whose objectives include managing aspects of the global economy, sovereignty allows nations to ignore international rules that are inconsistent with national goals. To meet their goals, nations can implement policies related to taxation and spending, money and exchange rates, and the international movement of labour and capital. Generally, these policies are aimed at increasing a nation's economic well-being and the standard of living of its citizens.

1.3 The Relationship Between International Trade and the Standard of Living

Countries participating in international trade gain national economic well-being. From the standpoint of exports, a country benefits from international trade because a new source of demand in foreign markets raises sales and the prices of the exported products. While domestic consumers lose economic well-being because they must now pay higher prices and buy a smaller quantity of the exported product, their losses are usually less than the gains of domestic producers. If the economic losses to domestic consumers and the gains to producers are valued the same, then the nation as a whole experiences an increase in economic well-being.

From the standpoint of imports, countries benefit from having additional source of supply in their domestic markets. Increased availability of the product reduces the domestic price and improves well-being of consumers who can now buy a larger quantity. Meanwhile, domestic producers are hurt as the lower domestic price causes them to supply a smaller quantity. Because consumers gain more than domestic producers lose in economic well-being, the entire country benefits from international trade.

In summary, free trade improves a nation's economic well-being by raising its export prices rise relative its import prices. The increase in export prices relative to import prices represents an improvement in the nation's terms of trade. The improvement in the terms of trade causes domestic production to expand as productive resources are used more efficiently. Meanwhile, domestic consumption increases because of the lower import prices and the increase in production and real income. **Table 1.1** summarizes the effects of international trade on living standards.

Table 1.1 Summary Effects of International Trade on Standard of Living

Item	Effects on Producers	Effects on Consumers	National Effects
Exports	Price ↑ Production ↑ Well-being ↑	Price ↑ Consumption ↓ Well-being ↓	Price ↓ Production ↑ > Consumption ↓ Well-being ↑
Imports	Price ↓ Production ↓ Well-being ↓	Price ↓ Consumption ↑ Well-being ↑	Price ↓ Production ↓ > Consumption ↑ Well-being ↑

1.4 Demand, Supply, Markets, and the Basic Theory of Trade

In this section, we review the fundamental concepts of **demand**, **supply**, and **markets** and use them to show that exchange is beneficial for both buyers and sellers under **perfect competition**. **Consumer surplus** and **producer surplus** are the basis for measuring the benefits to producers and consumers from any market transaction. Recognizing that foreign transactions widen the scope of the market, we apply demand and supply analysis to develop the basic theory of international trade.

The main conclusions that we derive include the following:

- Initial price differences between countries are the immediate reason for trade.
- Trade changes the domestic price in participating countries and leads to a single price in all markets.
- Countries participating in trade gain economic well-being.
- The gains from trade for participating countries are importantly influenced by the relative changes in domestic prices.
- Trade alters domestic production and consumption.
- Trade affects the economic well-being of different groups in society differently.

First, let's consider demand, supply, and market equilibrium, along with consumer surplus and producer surplus. Then, we will develop the basic model of international trade and draw the main conclusions stemming from the model.

Demand

The key factors influencing demand are consumer preferences, the product's price, the prices of related products, and income. Given these factors, individual consumers attempt to obtain the highest level of satisfaction.

The *law of demand* isolates the relationship between the quantity demanded and the product's price, assuming all other influences remain unchanged. We can view this relationship in the form of a demand curve, as shown in **Figure 1.3**, which plots the respective quantities that the consumers are willing to purchase at different prices. In effect, the demand curve tells us how much of the product the consumer would buy if faced with particular prices.

Review: Demand

Review or refresh your understanding of the concept of demand in economics by reading "3.1 Demand" in Principles of Economics (published by Saylor Academy).

The law of demand indicates an inverse relationship between the product's price and the quantity demanded. This negative relationship is influenced by substitution and income effects. The **substitution effect** arises from the fact that changes in relative prices usually cause consumers to switch purchases away from the more expensive product toward the cheaper one. The **income effect** reflects the potential for consumers to buy a larger quantity of one or more products as real income increases due to a fall in one product's price. If the quantity purchased increases as real income rises, the product in question is a normal good; if the quantity purchased falls in response to an increase in real income, the product is an inferior good. Most goods are presumed to be normal.

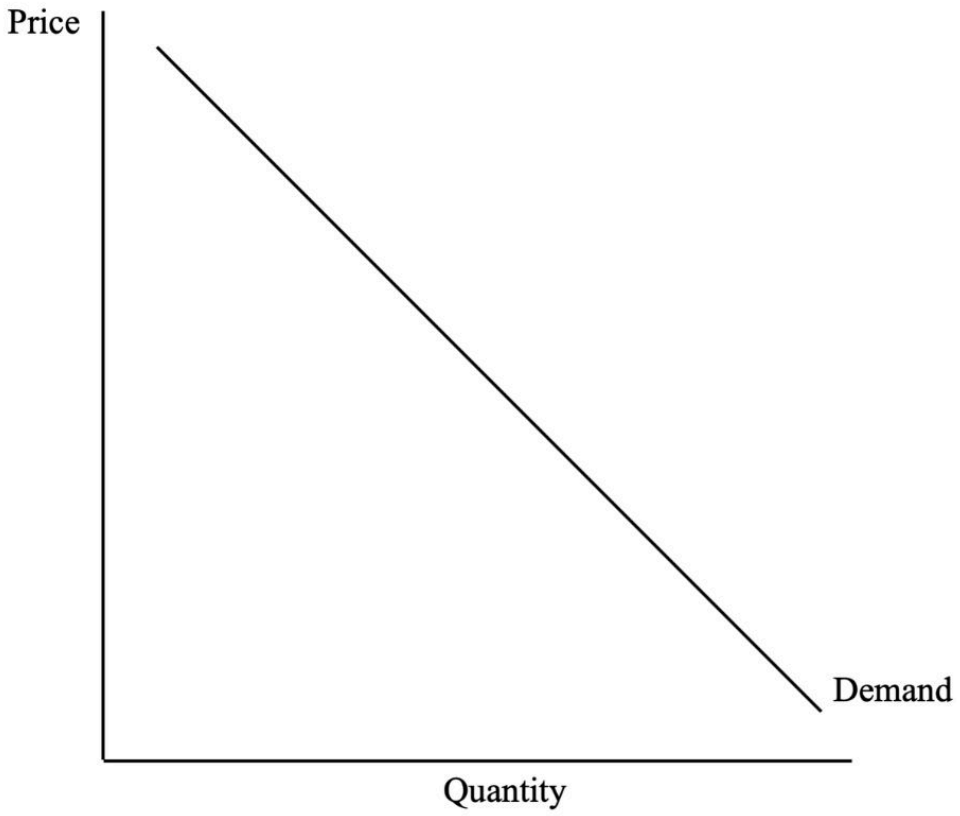

Figure 1.3: Demand Curve. *The market demand curve is an inverse relationship between price and quantity. As price falls, consumers buy a larger quantity of the product. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Price Elasticity of Demand

While we recognize that the quantity bought will usually fall in response to a price increase, we are often interested in how much — quantity demanded changes in response to the price change. We measure this quantity response by the *price **elasticity** of demand*. The price elasticity of demand is the percentage change in quantity demanded divided by the percentage change in the product's price:

$$\%\Delta Q_d \div \%\Delta P$$

where Δ is the change, Q_d is quantity, and P is price.

The interpretation of the price elasticity of demand is shown in **Table 1.2**.

Interpretation

Table 1.2: Interpretation of Elasticity Measures

Price Elasticity of Demand	Interpretation
$\varepsilon_d > 1$	Demand is price elastic
$\varepsilon_d < 1$	Demand is price inelastic
$\varepsilon_d = 1$	Demand is unitary elastic

- The calculated value for the elasticity is negative, reflecting the inverse relationship between price and quantity demanded. However, its sign is usually ignored.
- If the calculated value of the price elasticity of demand is greater than 1 in absolute terms, demand is elastic, meaning that a 1% fall in price leads to a greater than 1% increase in quantity demanded.
- If price elasticity is less than 1, demand is inelastic, meaning that a 1% fall in price leads to a less than 1% increase in quantity demanded.
- If price elasticity is equal to 1, demand is unit elastic, meaning that a 1% fall in price leads to a 1% increase in quantity demanded.

Change in Quantity Demanded Versus Change in Demand

A change in the price of the product will lead to a change in the quantity demanded and a movement along the demand curve in keeping with the law of demand. In this case, all the other influences on demand (e.g., income, prices of related products) remain unchanged in the background. If, however, any one of the influences on demand other than the product's price were to change, there would be a change in demand, and the demand curve would shift, as indicated in **Figure 1.4**. For instance, an increase in income raises demand and shifts the demand curve to the right, whereas a decrease in income lowers demand and shifts the demand curve to the left.

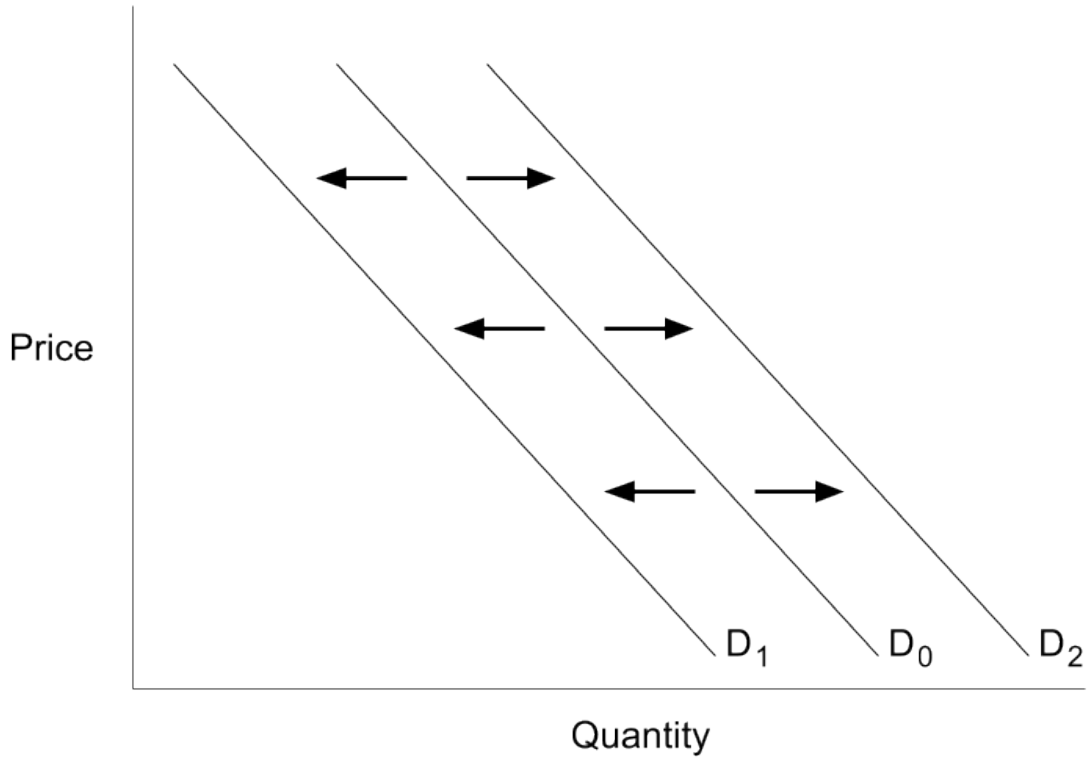

Figure 1.4: Change in Demand. *Changes in factors other than price cause a change in demand. An increase in income shifts the demand curve to the right, while a fall in income shifts the curve to the left. [See image description].*
Credit: *Figure 1 in "Changes in Supply and Demand" © Lumen Learning, CC BY 4.0*

Consumer Surplus

The demand curve reflects the value of the product to the consumer. For a specific quantity of the product, the demand curve represents the highest price the consumer is willing to pay, consistent with the expected benefit. However, in a competitive market, the consumer pays the prevailing price, which may be different from the value he or she puts on the product. To the extent that the value the consumer places on the product is higher than the market price, there is a net gain for the consumer. If the net gains to all consumers buying the product at the market price are added together, this represents the net benefit to all consumers or **consumer surplus**. Graphically, consumer surplus is represented by the area below the demand curve for the product and above the market price line, as shown in **Figure 1.5**.

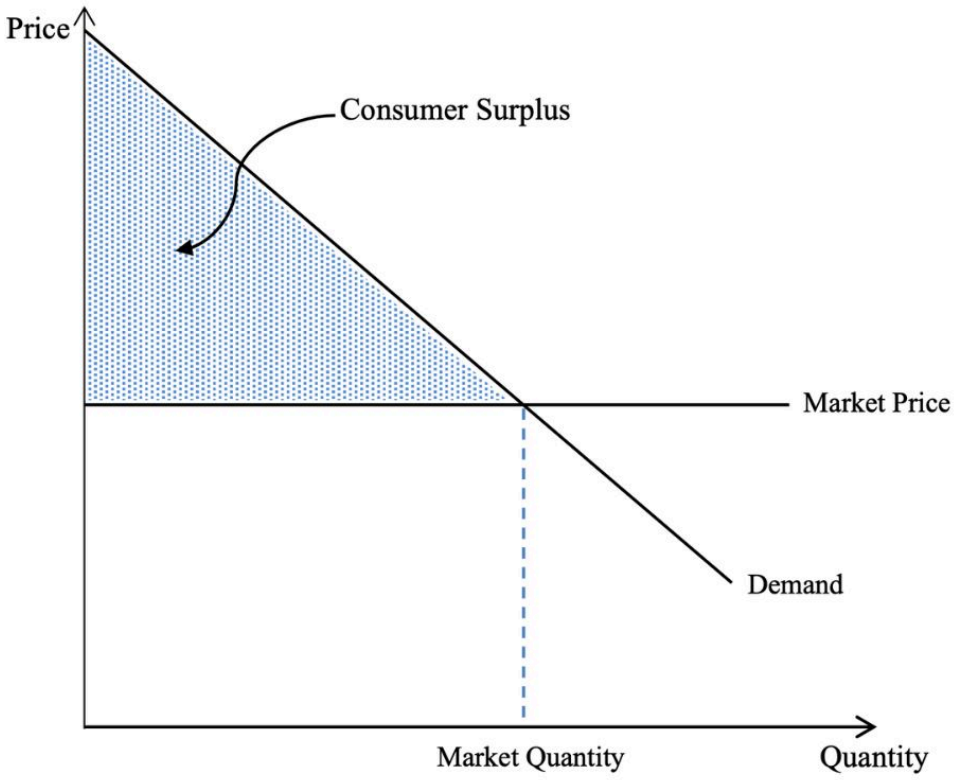

Figure 1.5: Consumer Surplus. *Shows the net gain in the economic well-being of consumers. Consumers' net gain is the difference between the highest price consumers are willing to pay for the product and its market price summed over the quantity sold. Consumer surplus is equal to the area below the demand curve and above the market price. [See image description].*

A major application of consumer surplus is to measure the impact on the economic well-being of consumers of a change in the market price. A reduction in price increases the well-being of consumers as they can buy more of the product at a lower price, whereas a higher price causes their well-being to fall.

Supply

A firm supplies a product to make a profit. Profit, on a unit basis, is the difference between price and the average total cost of production and sales. Therefore, supply depends on the price of the product, the price of other related products, the prices of resource inputs, and the technology used in production. The latter two factors influence the cost of production and sales.

The *law of supply* isolates the relationship between the quantity of the product supplied and its price, while the other factors influencing supply remain unchanged. We can represent this relationship using a supply curve which plots the respective quantities that the producers will offer for sale at particular prices.

Review: Supply

Review or refresh your understanding of the concept of supply in economics by reading "3.2 Supply" in Principles of Economics (published by Saylor Academy).

The law of supply indicates a positive relationship between the product's price and the quantity supplied. Since costs typically increase as the production of a good or service expands, producers require successively higher prices to compensate them for rising costs. The supply curve, shown in **Figure 1.6**, therefore, reflects the increasing **marginal cost of production**. This means that the supply curve is also a marginal cost curve.

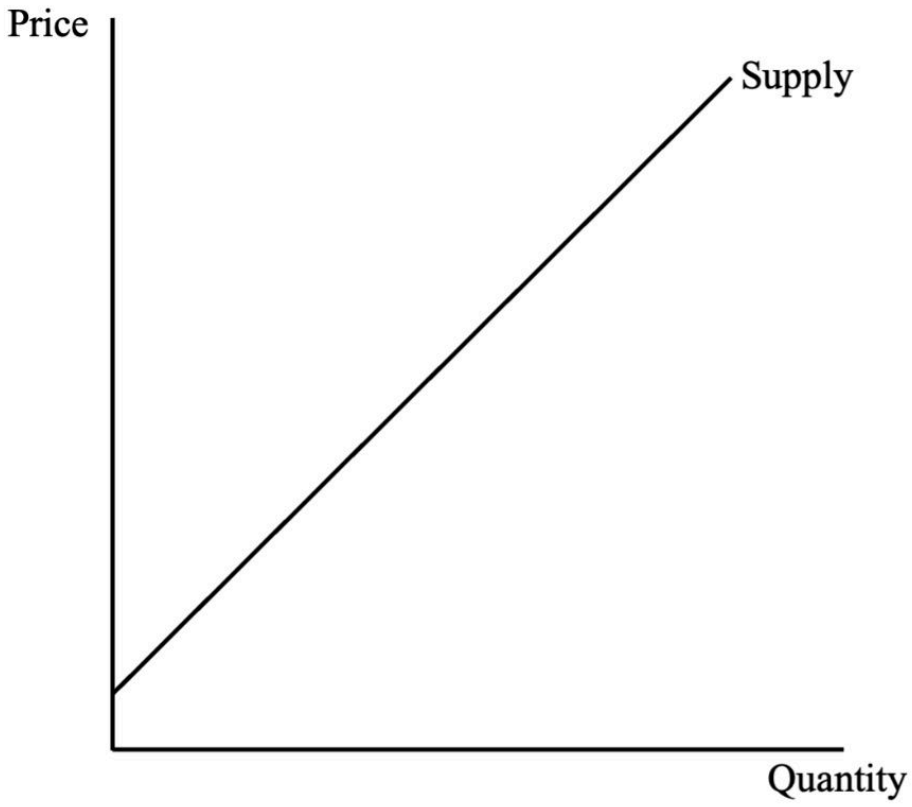

Figure 1.6: Supply Curve. *The market supply curve shows a positive relationship between price and quantity. As price increases, producers supply a larger quantity of the good. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Price Elasticity of Supply

We have established that the quantity of a good that is produced and sold will usually rise in response to an increase in its price. However, we are likely to be interested in how much the quantity supplied changes because of changes in price. This quantity response is measured by the *price **elasticity** of supply*, which is the percentage change in quantity supplied divided by the percentage change in the product price:

$$\%\Delta Q_s \div \%\Delta P$$

where Δ is the change, Q_s is quantity, and P is price.

The interpretation of the price elasticity of supply is shown in **Table 1.3**.
Interpretation

Table 1.3: Interpretation of Price Elasticity of Supply Measures

Price Elasticity of Supply	Interpretation
$\varepsilon_s > 1$	Supply is price elastic
$\varepsilon_s < 1$	Supply is price inelastic
$\varepsilon_s = 1$	Supply is unitary elastic

- The calculated value for the elasticity is positive, reflecting the positive relationship between price and quantity supplied.
- If the price elasticity of supply is greater than 1, supply is elastic, meaning that an increase in price will lead to a more than proportional increase in quantity supplied.
- If the price elasticity of supply is less than 1, supply is inelastic in that an increase in price will lead to a less-than-proportional increase in quantity supplied.
- If the elasticity is equal to 1, supply is unit-elastic, and the positive quantity response will be proportional to the increase in price.

A Change in Quantity Supplied versus a Change in Supply

A change in the product's price will cause a change in the quantity supplied and a movement along a given supply curve, in line with the law of supply. In this case, all the other influences on supply remain unchanged. If, however, there were to be a change in any of the other factors affecting supply, there would be a change in supply, and the supply curve would shift, as indicated in **Figure 1.7**. For instance, reducing resource prices or improving technology would increase supply, and the supply curve would shift to the right. Changes in these same factors in the opposite direction would reduce supply and cause the supply curve to shift inward.

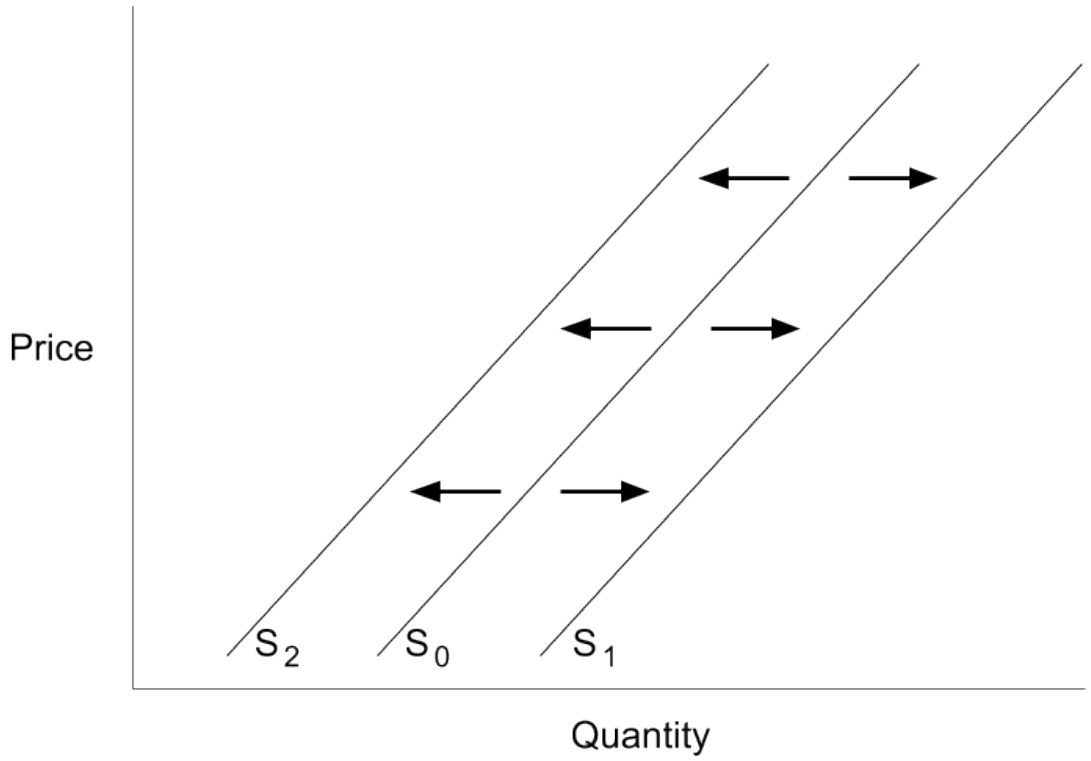

Figure 1.7: A Change in Supply. *Shifts in the supply curve result from changes in factors other than price (e.g., resource prices) that influence supply. A decrease in resource prices shifts the supply curve to the right, while an increase in resource prices shifts it to the left. [See image description].*
Credit: *Figure 3 in "Changes in Supply and Demand" © Lumen Learning, CC BY 4.0.*

Producer Surplus

The supply curve reflects the lowest cost associated with supplying specific quantities of the product. However, in a competitive market, the producer receives the prevailing market price, which may be different from the minimum price he or she is willing to accept. To the extent that the minimum acceptable price to the producer is less than the market price, there is a net gain. If the net gains to all producers were combined, this would represent their total net benefit or **producer surplus**. Graphically, producer surplus is represented by the area above the supply curve for the product and below the price line, as shown in **Figure 1.8**.

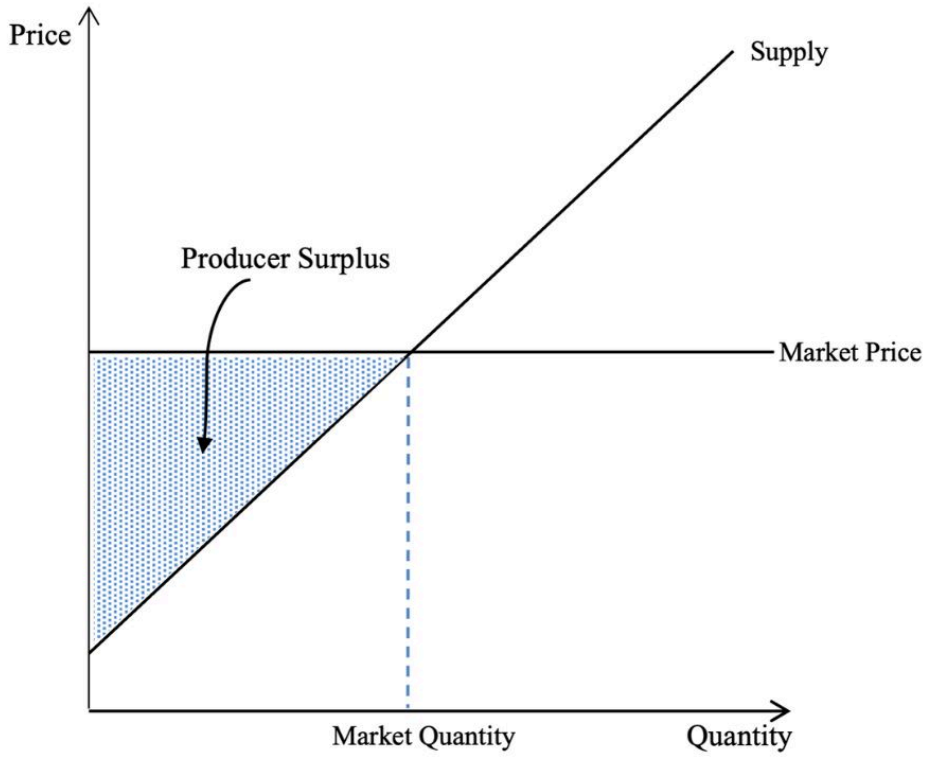

Figure 1.8: Producer Surplus. *Shows the net gain in economic well-being for producers. Producers' net gain is the difference in market price and the cost of production, summed over the quantity sold. Producer surplus is equal to the area above the supply curve and below the market price line. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

We use producer surplus to measure the impact on producers of a change in the market price. An increase in price raises the economic well-being of producers as they produce more, whereas a lower price causes producers' net benefits to fall.

Market Equilibrium: Bringing Supply and Demand Together

Market equilibrium is determined by the interaction of demand and supply conditions and occurs when the quantity demanded is equal to the quantity supplied. The equilibrium price is determined simultaneously with the equilibrium quantity, as shown in **Figure 1.9**. At the point of intersection of the supply and demand curves, the equilibrium quantity of the product delivers the highest possible benefit to society at minimum cost in terms of resource use. Therefore, in equilibrium, production is socially efficient.

Any deviation of the market price from its equilibrium value would lead to either a surplus or shortage, which would set in motion forces that eventually return the market to equilibrium. In equilibrium, both sides of the market benefit from the exchange – i.e., there are net benefits for both consumers and producers. Moreover,

the sum of consumer surplus and producer surplus is at a maximum. The distribution of the gains from market exchange between consumers and producers depends on the market price and the elasticities of supply and demand.

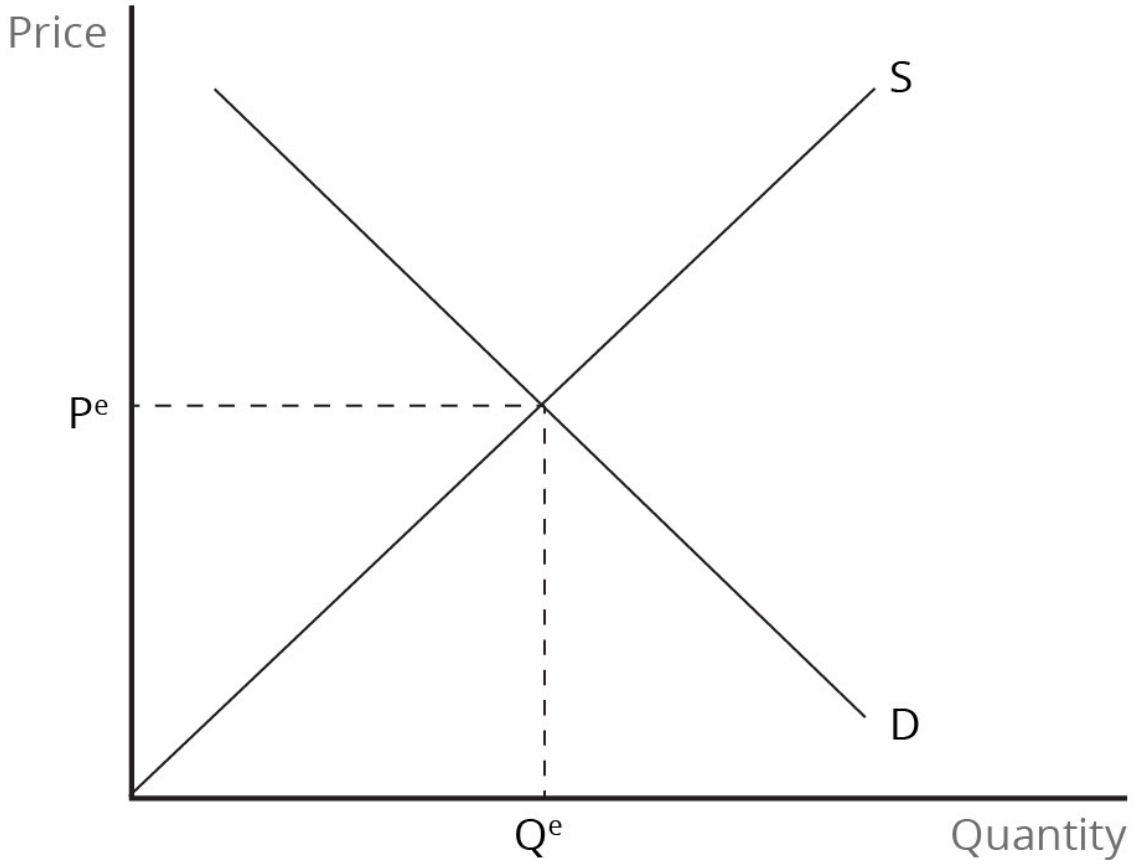

Figure 1.9: Market Equilibrium. *Demand and supply together represent the market for a product. The equilibrium price and quantity are determined by the intersection of demand and supply. Shifts in either demand or supply lead to changes in equilibrium price and quantity. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Review: Market Equilibrium

Review or refresh your understanding of the concept of equilibrium in economics by reading "3.3 Demand, Supply, and Equilibrium" in Principles of Economics (published by Saylor Academy).

International Trade Between Two National Markets

Initial differences in the price of a product in their domestic markets is the reason that two countries engage in international trade. Let us assume that two countries producing and consuming a particular product are not engaging in international trade. The price of the product is high in one country and low in the other, with the difference in price caused by differences in resource availability or in technology. Once people become aware of the price difference, they would recognize the opportunity for arbitrage. **Arbitrage** involves buying the product in the market where it has a low value and selling it in the market where its value is high to make a profit.

International trade will now emerge because of this difference in prices. This situation is depicted in **Figure 1.10**. For any price above the equilibrium in the low-price national market, excess supply and, therefore, exports will arise. Also, for any price below the equilibrium in the high-price national market, there will be excess demand and, therefore, imports will emerge. Therefore, an international market for the product will come into being.

In the low-price market, the additional source of demand from foreign buyers raises the product's price, while in the high-price market, the increase in available supplies due to imports reduces it. Assuming that there are no transportation costs between the two countries and no other barriers to trade, free trade will eventually lead to a single price in both national markets. At that price – the world price – the international market will be in equilibrium, with export supply being equal to import demand. In equilibrium, world supply is also equal to world demand. As in any market, any imbalance between export supply and import demand will set off an adjustment process that pushes the international price back to its equilibrium value.

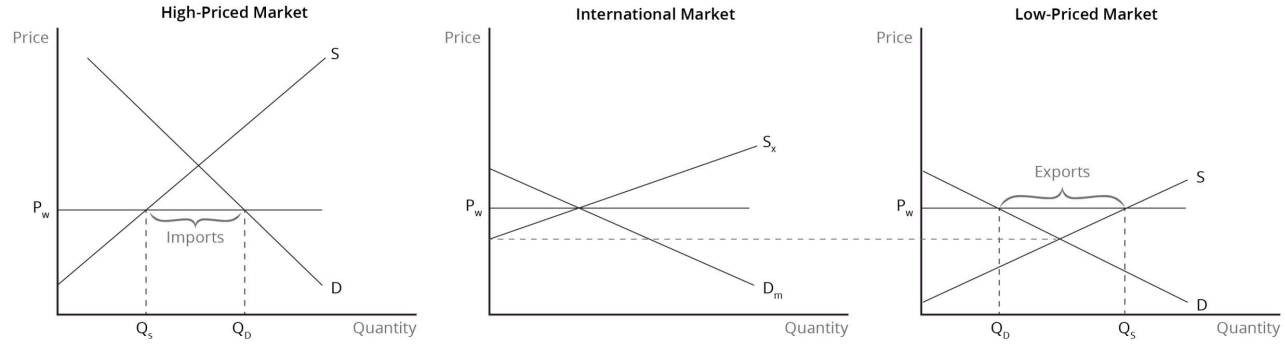

Figure 1.10: Three Markets: The Effects of International Trade on Consumption, Production, and Price. *Differences in domestic market prices are the main reason for international trade. Demand in the international market is excess demand in the high-price country, and supply in the international market is excess supply in the low-price country. Demand and supply in the international market determine the quantity traded and the world price. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Effects on Economic Well-Being in the Importing Country

In the importing country – where the product price was initially high – the shift from self-sufficiency to free trade causes the price on the domestic market to fall. On the one hand, this provides a benefit to consumers in this country as they pay a lower price and can now purchase a larger quantity of the product. Consumer surplus, therefore, increases. On the other hand, producers in the importing country are worse off because of international trade because the domestic price falls, and they supply a smaller quantity of the product due to import competition. Producer surplus, therefore, declines. However, with consumers gaining more than domestic producers lose, the economic well-being of the importing country increases if gains or losses are valued equally for consumers and producers.

The Effects on Economic Well-Being in the Exporting Country

In the exporting country, where the product price was initially low, the shift from self-sufficiency to free trade raises the price on the domestic market. This provides a benefit to producers in this country as they receive a higher price and sell a larger quantity of the product. Producer surplus, therefore, increases. On the other hand, consumers in the exporting country are worse off due to trade because of the increase in the domestic price and the smaller quantity of the product that they can now buy. Consumer surplus, therefore, shrinks. With producers gaining more than domestic consumers lose, the economic well-being of the exporting country rises if gains or losses are valued the same for consumers and producers.

The Distribution of the Gains Between Importing and Exporting Countries

This analysis shows that both importing and exporting countries gain from free trade and, therefore, the world also benefits. However, we must also consider whether one country gains more economic well-being than the other. In the international market, we can compare the relative sizes of the surpluses accruing to the importing and exporting countries. Since exports and imports must be equal, the relative gains depend on the size of the price change in both countries. The country that experiences the larger price change will have greater net benefits from trade. The net benefits are divided in proportion to the changes in price that international trade brings to both the importing and exporting countries. The elasticities of import demand and export supply are also important, with the country having the more inelastic trade curve – export supply curve or import demand curve – gaining more.

Attributions

Figure 1.4 A Change in Demand reuses Figure 1 in “Changes in Supply and Demand” of Microeconomics by Lumen Learning and available under a CC BY 4.0 Deed | Attribution 4.0 International | Creative Commons license.

Figure 1.7 A Change in Supply reuses Figure 3 in “Changes in Supply and Demand” of Microeconomics by Lumen Learning and available under a CC BY 4.0 Deed | Attribution 4.0 International | Creative Commons license.

Image Descriptions

Figure 1.3: Demand Curve

The image is a graph with a vertical axis labelled “Price” and a horizontal axis labelled “Quantity.” A single downward-sloping line extends from a high point on the vertical axis to the far-right point on the horizontal axis. The line is labelled “Demand” near its intersection with the horizontal axis. The graph has no numerical scale, grid lines, or other annotations.

[back]

Figure 1.4: Change in Demand

The image is a graph representing a change in market demand. The graph has two axes: the vertical axis is labelled “Price,” and the horizontal axis is labelled “Quantity.” There are three downward-sloping lines, equidistant and parallel to one another. The leftmost demand curve is labelled “D_1“, the middle demand curve is labelled “D_0“, and the rightmost demand curve is labelled “D_2“. The lines are equally angled, parallel to one another, and uniformly spaced apart. Two sets of stacked arrows between the lines indicate movement from one demand curve to another. One set of stacked arrow points from D_0 to D_1 indicates a shift to the left, and the other points from D_0 to D_2 indicate a shift to the right. These arrows symbolize a decrease and an increase in demand, respectively.

[back]

Figure 1.5: Consumer Surplus

The image shows a simple graph with two axes: the vertical axis represents “Price,” and the horizontal axis represents “Quantity.” A downward-sloping line labelled “Demand” intersects the vertical axis at a high price point and the horizontal axis at a point further to the right, indicating that as price decreases, quantity demanded increases. There is a horizontal line labelled “Market Price,” intersecting the demand curve, indicating the market equilibrium price. The area between the demand curve, the market price, and the vertical axis is shaded, indicating the consumer surplus area. There is a vertical dashed line from the intersection point of the demand curve and the market price extending down to meet the horizontal axis, labeled “Market Quantity.” No other textual information is present.

[back]

Figure 1.6: Supply Curve

The image displays a simple graph with a vertical axis on the left, labelled “Price,” and a horizontal axis at the bottom, labelled “Quantity.” A single straight line originates from the y-axis, just above where the axes intersect, and rises diagonally to the upper right side of the graph, indicating a direct relationship between price and quantity. The slope of the line is positive, suggesting that as the price increases, the quantity of goods supplied also increases. The diagonal line is labelled “Supply.”

[back]

Figure 1.7: A Change in Supply

The image shows a simple line graph with two axes: the vertical axis is labelled “Price,” and the horizontal axis is labelled “Quantity.” There are three upward-sloping lines from left to right, labelled “S_2“, “S_0“, and “S_1” respectively, indicating different supply curves. Each line represents a different state of supply. The lines are equally angled, parallel to one another, and uniformly spaced apart. Two sets of stacked arrows between the

lines indicate movement from one supply curve to another. One set of stacked arrow points from "S_0" to "S_2" indicates a shift to the left, and the other points from "S_0" to "S_1" indicate a shift to the right.

[back]

Figure 1.8: Producer Surplus

The image is a graph with two axes: the vertical axis is labelled "Price," and the horizontal axis is labelled "Quantity." A supply curve is depicted by an upward-sloping line from the origin toward the right, labelled "Supply." A horizontal line at the middle of the vertical axis is labelled "Market Price." A vertical dotted line labelled "Market Quantity" intersects the horizontal market price line at the same point where it intersects the supply curve. Between the vertical axis, below the market price line, and above the Supply line, is a shaded triangle area labelled "Producer Surplus."

[back]

Figure 1.9: Market Equilibrium

The image is a graph with two axes and two intersecting lines. The vertical axis represents "Price," while the horizontal axis represents "Quantity." There are two lines that intersect: the upward-sloping line is labelled "S," and the downward-sloping line is labelled "D." They intersect at a point that establishes the market equilibrium. At this intersection, the price level is indicated by a dashed horizontal line extending left from the intersection and is labelled "P_e," and the quantity is indicated by a dashed vertical line extending downward and labelled "Q_e."

[back]

Figure 1.10: Three Markets: The Effects of International Trade

The image displays three separate supply and demand graphs, representing different market types and the effects of international trade. Each graph consists of two axes: Price on the vertical axis and Quantity on the horizontal axis, with Supply (S) and Demand (D) curves intersecting at the equilibrium point.

In the "High-Priced Market" graph on the left, the supply curve slopes upwards to the right, and the Demand curve slopes downwards to the right, intersecting to indicate the market equilibrium. A horizontal line labelled P_W is drawn below the equilibrium point, indicating the world price. Vertical dotted lines go from where the world price line intersects the supply and demand curves and down to the x-axis, labelled Q_s and Q_d. The section of the world price line between the supply and demand intercepts is labelled "Imports."

The central graph, titled "International Market," has an upward-sloping supply curve labelled S_X and a downward-sloping demand curve labelled D_m. The horizontal line indicating the world price, P_W, intersects where supply and demand intersect.

On the right is the "Low-Priced Market" graph. Similar to the first graph, the supply and demand curves intersect, but here, the horizontal world price line, Pw, is drawn above the equilibrium point. Vertical dotted lines go from where the world price line intersects the supply and demand curves and down to the x-axis, labelled Q_s and Q_d. The section of the world price line between the supply and demand intercepts is labelled "Exports."

A horizontal dotted line goes from the beginning of the supply line on the center graph y-axis across to the intersection of supply and demand on the right graph.

[back]

Chapter 1 Summary

LO 1.1 The Meaning and Importance of Globalization

- Globalization is the process of increasing economic interdependence among nations.
- Its key aspects are growing international trade, rising cross-border financial flows, increasing international migration, a tendency toward economic and cultural homogeneity, and an ongoing shift toward private markets.

LO 1.2 International Trade and Finance as Part of International Economics

- International economics includes the study of international trade and the study of international finance.
- International trade uses microeconomic analysis to understand why nations trade and the impacts of trade on consumers, businesses, nations, and the world.
- International finance uses macroeconomic models to understand the domestic economy and the financial implications of its linkages with other national economies.

LO 1.3 The Relationship Between International Trade and Standard of Living

- Nations engaged in international trade experience gains in economic well-being.
- An exporting country benefits as foreign demand raises sales and product prices.
- An importing country gains well-being from an increase in supply and lower product prices.
- Overall, international trade improves a nation's terms of trade causing production and consumption to increase.

LO 1.4 Demand, Supply, Markets, and the Basic Theory of Trade

- The basic theory of trade is set out using the model of demand and supply.
- International trade occurs as the opportunity for arbitrage arises due to initial differences in product prices between countries.
- International trade leads to a single price in all markets.
- While countries participating in trade experience overall economic gains, producers in exporting countries gain while consumers lose, whereas the opposite is true for importing countries.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=49#h5p-1

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Attributions

CHAPTER 2: COMPARATIVE ADVANTAGE AND THE STANDARD TRADE MODEL

Chapter 2 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Discuss the importance of economic theories and models.
2. Explain the theories of absolute advantage and comparative advantage.
3. Explain international trade using the production possibilities frontier and community indifference curves.
4. Describe the effects of international trade on production, consumption, and product prices.

Think About It!

Video: Economic Models

Before reading this chapter, watch this video outlining the basic concept of economic models.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=94#oembed-1

Source: Khan Academy. (2017, August 8). *Economic models | basic economics concepts | AP macroeconomics and microeconomics | Khan Academy* [Video]. YouTube. https://www.youtube.com/watch?v=7n_Hf_UsW7I

Reflection Questions

Before we begin, we encourage you to reflect on the following questions:

1. Do you agree that because models are simplifications of reality, they cannot help us understand real-world economic behaviour. Why or why not?
2. In your view, what are some reasons why countries trade with each other?
3. Can countries with limited resources and poor technology benefit from free trade?
4. Can you identify some different ways in which countries can and do benefit from trade?

Introduction

In this chapter, we discuss the use of models in economic analysis as aids to understanding economic behaviour. While models help us to make decisions we must use them with care. Next, we distinguish the *theory of absolute advantage* from the *theory of comparative advantage* and show how the second improves on the first. From there, we identify how differences in the opportunity costs of production are the basic reason for countries to engage in international trade. With the help of the production possibilities frontier and community indifference curves, we show how countries benefit from trade by jointly producing a larger output and attaining higher consumption levels at lower average prices. While the economic well-being of participating countries improves with international trade, we recognize that not all groups within the economy necessarily benefit. Lastly, while initial differences in price between countries provide the primary motivation for trade, we explore several factors that influence such differences.

2.1 The Importance of Economic Theories and Models

Economists apply the *scientific method* to develop theories or models to explain economic behaviour in the real world. In this chapter specifically (and in this course, generally), we will use economic models to explain international trade and its implications. Therefore, it is important to understand the role played by economic models or theories in economic analysis.

Review: The Scientific Method

Review or refresh your understanding of the scientific method by watching this video [8:38].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=99#oembed-1

Source: Sprouts. (2017, October 5). *The scientific method: Steps, examples, tips, and exercise*. [Video]. YouTube. https://www.youtube.com/watch?v=yi0hwFDQTSQ

An **economic model** is a simplification of economic reality, which allows us to observe, understand, and make predictions about cause and effect in the real world. Since the world is complex, with many factors constantly changing, economic models capture only the elements that are important to the problem under consideration. If we were to include too many details, this can make an economic model unwieldy, limiting its usefulness in understanding and predicting economic behaviour.

As an example, we can think of the demand model. While many other factors besides price influence the quantity of a product that consumers purchase, the demand model looks only at the relationship between price and quantity, holding income, prices of related products, and consumer preferences constant. If all the main influences on demand were to change continually, it would be difficult to make conclusions about the effects of changes in price on consumer purchases. Assuming they ignore other influencing factors, if the price of gasoline were to increase, people might immediately expect gasoline purchases to fall. A good economic model, therefore, provides a shortcut to help people process information and make decisions.

We use the scientific method to develop and discover useful economic models. The scientific method involves the following steps (McEachern, 2017):

- Identifying the question of interest and defining the **variables** that will help in answering it

- Specifying the assumptions under which the results of the model will be applied;
- Framing a **hypothesis** or theory about how the key variables relate to one another, and
- Testing hypotheses by subjecting them to real-world situations and events.

Figure 2.1 illustrates the traditional steps of the scientific method, which align with the steps used to develop an economic model.

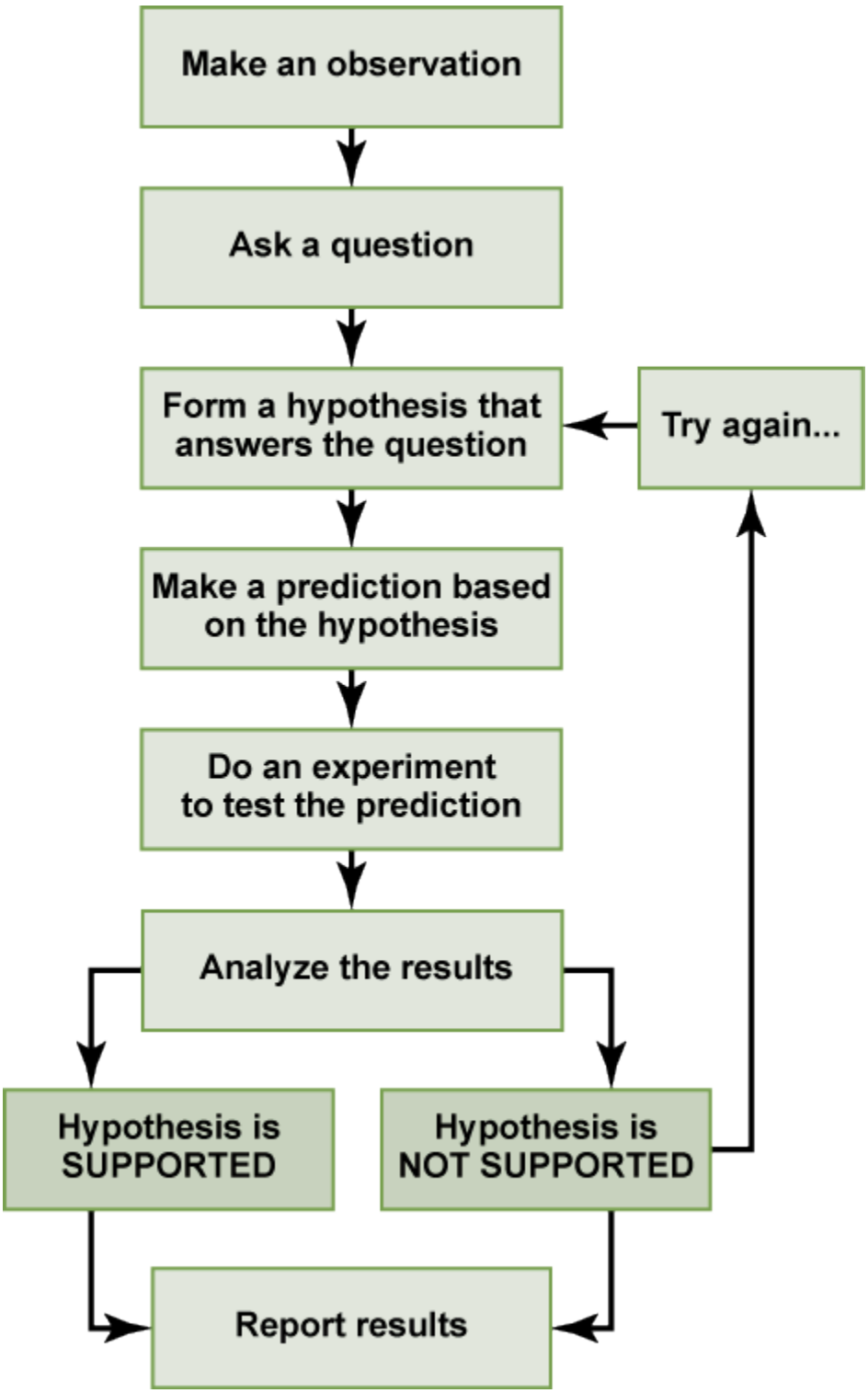

Figure 2.1: The Scientific Method. *[See image description].*
Credit: *Figure 1.18 in "1.2 The Process of Science" © OpenStax – Rice University, CC BY 4.0.*

Let us discuss each of these further. First, the question may relate to anything in which we are interested, e.g., how does the value of the exchange rate affect the volume of exports? The variables that may help in answering

this question are the exchange rate and the quantity of exports. By definition, a variable takes on different values over time or in different circumstances. Because the variables are critical to answering the question, we must be careful in deciding which variables we include in a model.

The assumptions are crucial to the interpretation of the results of any economic model. One type of assumption is the other-things-equal assumption. The idea is to focus entirely on the relationship between the variables relevant to answering our question while keeping all other important influences constant. If we are talking about the relationship between the exchange rate and exports, we assume, for instance, that there is no change in the preferences of foreigners for our products. The other type of assumption relates to how the variables of interest are expected to relate to each other. These are behavioural assumptions.

The framing of the hypothesis captures our view or theory about how the key variables relate to each other. We may expect that a fall in the exchange rate – because it makes our products less expensive to foreigners – will lead to an increase in our exports, other things equal. The purpose of the hypothesis is to make predictions about cause and effect in real-world situations where the value of a variable changes.

The final step of the scientific method is to test our hypothesis. To properly test a model's predictions, we must compare its results with real-world evidence. For instance, if we wanted to test the model of demand, we might conduct a survey in which we ask consumers whether they would buy a larger quantity of a product if its price fell. If an overwhelming proportion of the respondents indicate that they will buy more in response to a fall in price, our hypothesis would be supported. If real-world testing supports the hypotheses, then we will have a workable theory that can be used until a better one is developed. If we cannot validate our hypothesis in real-world applications, then we can modify our model to yield better predictions.

We must use economic models with caution (McEachern, 2017). In particular, we must recognize that a model's predictions apply to average or typical behaviour, not the specific behaviour of any individual, business, nation, or other entity. Also, determining cause and effect in the real world is not straightforward. Specifically, the fact that two variables are related does not imply that one variable causes the other. For instance, ice cream sales and shark attacks may correlate positively at a beach, but this does not mean that cream sales cause shark attacks. It is more likely that ice cream sales and shark attacks are more likely related to another common factor (Frost, n.d.). Lastly, but still significant, we must interpret the predictions of any model based on its assumptions.

References

Frost, J. (n.d.). *Spurious correlation: Definition, examples, and detecting*. Statistics by Jim. https://statisticsbyjim.com/basics/spurious-correlation/

McEachern, W. A. (2017). *Macroeconomics: A contemporary introduction,* (11th ed.). Cengage Learning.

Attributions

Figure 2.1: The Scientific Method reuses Figure 1.18 in "1.2 The Process of Science" from Concepts of Biology by OpenStax – Rice University, licensed under a Creative Commons Attribution 4.0 International License, except where otherwise noted. Access for free on the OpenStax website.

Image Descriptions

Figure 2.1: The Scientific Method

The image is a flowchart of blocks arranged vertically and containing a step in the process. Starting from the top, the blocks read “Make an observation,” “Ask a question,” “Form a hypothesis that answers the question,” “Make a prediction based on the hypothesis,” “Do an experiment to test the prediction,” “Analyze the results,” followed by two outcomes at the bottom: “Hypothesis is SUPPORTED” or “Hypothesis is NOT SUPPORTED.” These two outcomes then connect to “Report results.” A line goes from the right side of “Hypothesis is NOT SUPPORTED” and back up to a box labelled “Try again…” with an arrow completing the loop back to “Form a hypothesis that answers the question.”

[back]

2.2 Comparing Absolute Advantage with Comparative Advantage

In this section, we discuss two conventional theories of trade – Adam Smith's **absolute advantage** and Ricardo's **comparative advantage**. After defining these two theories, we set out their analytical approaches with the help of economic models and simple calculations. Because the real world is complex, we will use a model that assumes two goods, two countries, and one factor of production, namely, labour. To simplify our analysis, we will ignore all other goods produced by the two economies, all other countries in the world, and all other factors of production.

Adam Smith and Absolute Advantage

Absolute advantage is a notion with **Adam Smith** who contended that a country should export a product in which it has an absolute cost advantage and import a product in which it has an absolute cost disadvantage. Absolute advantage arises from the ability of a country to make a product at lower input cost (i.e., using a smaller quantity of labour) than another country. More broadly, a country has an absolute advantage in the production of a good if it can make that good with less resources than another country (Carbaugh, 2015; Pugel, 2020). Shifting a resource into an industry where it is more productive boosts overall productivity and raises global production efficiency because each country can exploit its absolute cost advantage. When each country has a product that other countries want, and can make it using fewer resources than other countries, we can see that there would be benefits from trade. Smith concluded that at least one country would be better off from trade and that, generally, both countries would be better off.

Did You Know? Adam Smith

Adam Smith (1723 – 1790) was a Scottish political economist who wrote *An Inquiry into the Cause of the Wealth of Nations*. *Wealth of Nations* was a highly critical commentary on mercantilism, the prevailing economic system of Smith's time. Mercantilism emphasized maximizing exports and minimizing imports. In *Wealth of Nations,* Smith argued that everyone benefits from the removal of tariffs and other barriers to trade, i.e., from free trade. Adam Smith was convinced that the market would stimulate development, improve living conditions, reduce social strife, and create an atmosphere that was conducive to peace and human cooperation.

Source: Adapted from "Adam Smith" in Unit 1: Industrialization and Theories of Economic Change, HIST363: Global Perspectives on Industrialization published by Saylor Academy under a CC BY 3.0 Unported license.

David Ricardo and Comparative Advantage

David Ricardo showed that there was a basis for trade even if a country did not have an absolute advantage with respect to the production of any good. In essence, Ricardo argued that if a country had to devote labour to making a product that it was not good at making, then its overall production would not be as large as it could be because labour would not have been put to its best use. Ricardo's theory of comparative advantage was based on the notion of **opportunity cost**, which is the largest amount of some good that must be given up in order to produce a particular amount of another good. The implication is that a country will export goods that it can produce at lower opportunity cost and import goods that it can only produce at higher opportunity cost. Each country can benefit from international trade by exporting products in which it has the greatest relative advantage in production and importing products in which it has the least relative advantage.

A country will export goods that it can produce at lower opportunity cost and import goods that it can only produce at higher opportunity cost.

Did You Know? David Ricardo

David Ricardo (1772 – 1823), a British political economist, is considered the founder of British Classical Economics. He is best known for his Principles of Political Economy and Taxation, arguing that the value of a good is related to the amount of labour required to make it. He developed the economic theory of comparative advantage in the 19th century. He argued that countries can benefit from trading with each other by focusing on making the things they were best at making while buying the things they were not as good at making from other countries.

Bringing Smith and Ricardo Together

Based on Smith's measure of productivity, we can calculate Ricardo's measure of comparative advantage as the ratio of labour productivity with regard to the two products. **Figure 2.2** illustrates how Ricardo's theory of comparative advantage is related to Smith's theory of absolute advantage. Based on the labour productivity of the United States and the Rest of the World for the two products, the latter has an absolute advantage in the production of both textiles and grains. Based on absolute advantage, the Rest of the World should export both products as its productivity is higher for both products (Carbaugh, 2015; Pugel, 2020).

Ricardo's comparative advantage argues that what should matter is not the productivity with respect to individual products but rather the relative productivity. The comparative advantage of one good is measured in terms of the quantity of the other good that must be given up to produce a unit of the good. The country with the lower productivity ratio for a particular product has a comparative advantage and should export that product and import the product for which the productivity ratio is higher. In **Figure 2.2**, the opportunity cost of producing textiles is lower for the Rest of the World, while the opportunity cost for producing grains is lower for the United States. Based on comparative advantage, therefore, the Rest of the World should export textiles while the United States exports grains. Both countries, therefore, benefit from trade (Carbaugh, 2015; Pugel, 2020).

Since Ricardo thought that product prices reflected labour costs, we consider the productivity ratio to be a relative price, i.e., the price of one good in terms of the price of the other good. As long as there are differences in relative prices between countries, there will be an opportunity for **arbitrage,** and international trade will emerge. Arbitrage involves buying a product where its price is low and selling it where its price is high with the aim of making a profit. With arbitrage, international trade eventually leads to relative prices in both countries being equal. The international equilibrium price will ultimately depend on the relative strength of demand for the two products. Both countries will benefit from trade due to increases in production efficiency, allowing overall production to increase and product prices to fall. Given higher income and lower average prices, overall consumption will also increase.

Overall, Ricardo's theory of comparative advantage represents an improvement upon Smith's explanation of trade. Ricardo established that a country can benefit from trade even when it does not have an absolute advantage in the production of any product. Since technology differences are assumed to be responsible for differences in labour productivity, even poor countries with relatively low levels of technology can benefit from trade. Also, the theory of comparative advantage suggests that low wages are not sufficient to give any country a competitive edge in international trade. This is because productivity levels are also important in influencing costs, prices, and trade. Although Ricardo's comparative advantage encompasses and builds on Smith's theory of absolute advantage, Smith nonetheless provides an explanation as to why living standards differ across countries. Countries with higher productivity tend to have higher incomes (Carbaugh, 2015; Pugel, 2020).

Figure 2.2: Smith's Absolute Advantage vs. Ricardo's Comparative Advantage

Smith's Absolute Advantage

Productivity – Units/Hour (Smith)	United States	Rest of the World
Textiles	1	4
Grains	2	3

Ricardo's Comparative Advantage

Opportunity Cost (Ricardo)	United States	Rest of the World
Textiles	2/1 = 2.0	3/4 = 0.75
Grains	1/2 = 0.5	4/3 = 1.33

- Rest of the World has absolute advantage in both textiles and grains.
- Rest of the World has comparative advantage in textiles.
- United States has comparative advantage in grains.

Review: Comparative Advantage vs. Absolute Advantage

Review your understanding of the comparative advantage vs absolute advantage by watching this video [5:25].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=102#oembed-1

Source: Easy Marketing. (2023, April 2023). Comparative advantage vs absolute advantage: The battle between comparative vs absolute advantage [Video]. YouTube. https://www.youtube.com/watch?v=KB3m25r4keA

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Attributions

“Did You Know? Adam Smith” is adapted from “Adam Smith” in Unit 1: Industrialization and Theories of Economic Change, HIST363: Global Perspectives on Industrialization published by Saylor Academy under a CC BY 3.0 Unported license.

“Did You Know? David Ricardo” is adapted “33.1 Absolute and Comparative Advantage” in Principles of Economics 3e by OpenStax – Rice University and is licensed under a Creative Commons Attribution 4.0 International License, except where otherwise noted.

2.3 Benefits from Trade: Production Possibilities Frontier Under Constant and Increasing Costs

We can demonstrate the benefits of international trade using the **production possibilities frontier (PPF)**. The PPF shows all combinations of quantities of two products that an economy can produce, assuming all of its resources are fully utilized and that the highest level of productivity is attained. Formally, the PPF assumes that the economy produces only two goods with a fixed quantity of resources and a given technology. We will show the benefits from international trade based on the theory of comparative advantage, first assuming constant costs and then subsequently assuming increasing costs. The following three videos provide some basic information on the development and meaning of the PPF.

Review: The Production Possibilities Frontier

Review or refresh your understanding of the production possibilities frontier by watching these videos.

Part 1 [5:13]

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=109#oembed-1

Source: Federal Reserve Bank of St. Louis. (2016, December 1). (1/3) The production possibilities frontier – Economic lowdown [Video]. YouTube. https://www.youtube.com/watch?v=nsQi2ipSP2c

Part 2 [5:24]

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=109#oembed-2

Source: Federal Reserve Bank of St. Louis. (2016, December 1). (2/3) The production possibilities frontier – Economic lowdown [Video]. YouTube. https://www.youtube.com/watch?v=8C9y_5-rshE

Part 3 [5:10]

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=109#oembed-3

Source: Federal Reserve Bank of St. Louis. (2016, December 1). (3/3) The production possibilities frontier – Economic lowdown [Video]. YouTube. https://www.youtube.com/watch?v=Nw0ugthoc8o

The Production Possibilities Frontier with Constant Costs

We can illustrate Ricardo's theory of trade using a linear or straight-line PPF. Ricardo assumed that labour was the only factor and that labour productivity was constant across industries within each country. Given a fixed quantity of labour and the state of technology, the PPF represents production efficiency. To increase the production of one good, society must reduce the production of the other — there is a trade-off. With labour productivity constant, opportunity costs are constant, and the PPF is a straight line. Any combination of the two goods inside the PPF represents inefficient production, while any combination beyond the PPF is unattainable without trade.

Given the straight-line or linear PPF, each country produces only the good in which it has a

comparative advantage and imports the good in which it has a comparative disadvantage. This situation is illustrated in **Figure 2.3**.

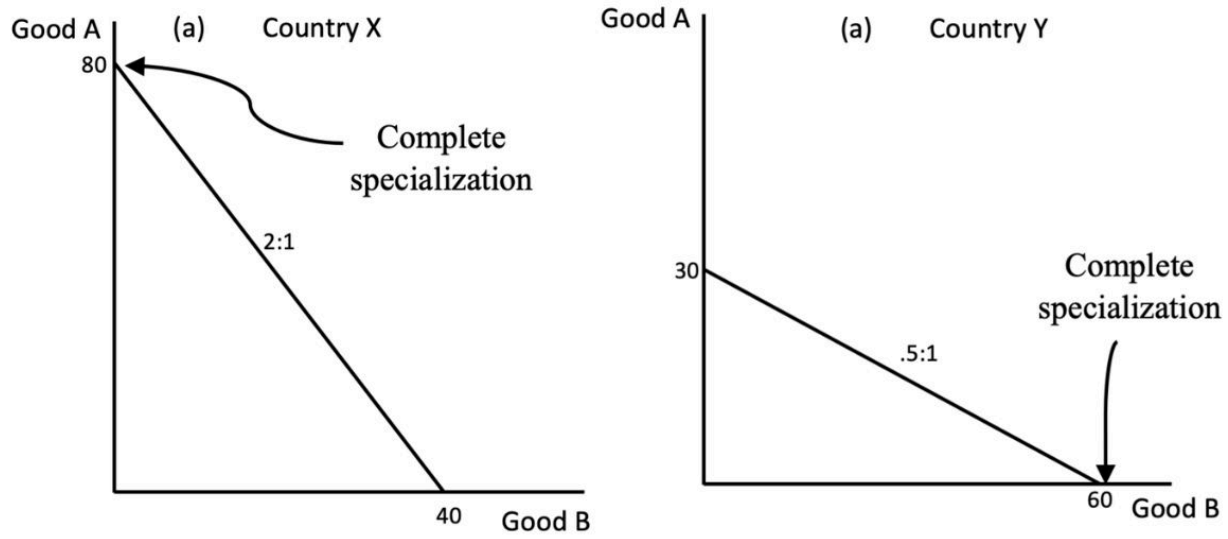

Figure 2.3 Production Possibilities Curves Under Constant Costs Before Trade. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Based on Figure 2.3, Country X has a comparative advantage in the production of Good A and will, therefore, specialize completely in producing and exporting this good. Meanwhile, Country Y has a comparative advantage in producing and exporting Good B. Given a fixed quantity of labour and the state of technology, we see from the graph above that Country Y is able to produce more of Good B than Country X. Good B has a low price in Country Y and a high price in Country X. The converse is true for Good A. Since Country X can produce more of Good A than Good B, Good A will have a low price in Country X and a high price in Country Y.

With international trade, the product whose price was initially low rises due to the additional source of demand from abroad. Meanwhile, the product whose price was initially high falls because of the additional source of supply that comes into the domestic market. Thus, there will be a tendency for the price of each traded product to be the same in both domestic markets as well as in the international market. As the relative

price of the export products rises, each country can now buy more of the import product. With international trade, therefore, each country can now consume a combined quantity of both products that is beyond its production possibilities frontier. Therefore, each country benefits from trade.

In **Figure 2.4**, on the presumption that the international price ratio settles at 1:1 (i.e., one unit of Good A exchanges for 1 unit of Good B), we can compare the situation before trade with the situation after trade for each country. That is, we can compare a point on the domestic terms of trade line (i.e., the same as the PPF) with a point on the international terms of trade line. Since the international terms of the trade line lie beyond the domestic terms of the trade line, a point on the former represents an improvement compared with the situation before the trade. Thus, the economic well-being of both countries improves with trade. Each country is now more productive because it directs all its resources into the industry in which input cost (i.e., labour use) is lower. With both countries now able to produce more output at lower cost, product prices fall as real income rises, facilitating higher consumption.

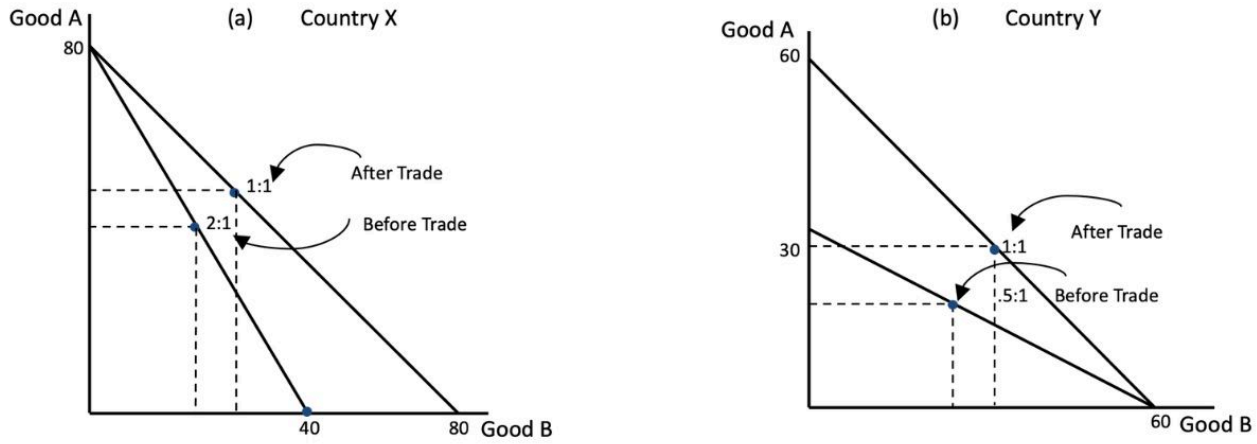

Figure 2.4: International Trade Under Constant Costs. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Production Possibilities Frontier with Increasing Costs

While this explanation of international trade is a meaningful one, the idea of complete specialization in production is a limitation. In reality, complete specialization is unlikely because many industries face increasing

costs of production. Usually, to produce more of one good, increasingly more resources must be bid away from production of the other good, which raises the cost of production. Also, most firms experience diminishing returns to the factors of production, which, given constant factor prices, causes marginal costs to rise. When the PPF reflects increasing opportunity cost, it becomes concave, compared with the linear PPF that results from the assumption of constant opportunity cost. **Figure 2.5** shows the production possibilities frontier of a country with increasing costs.

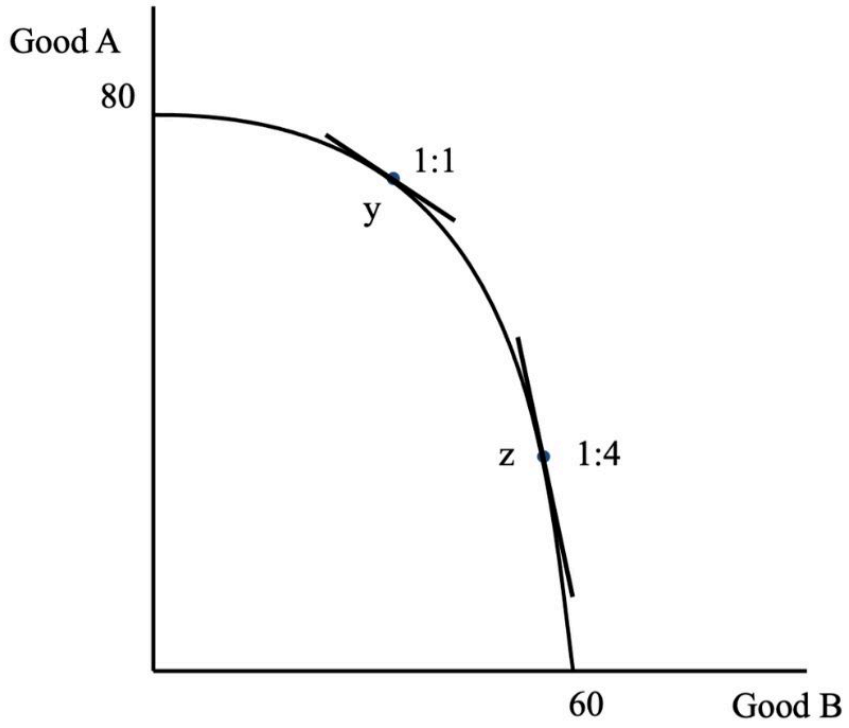

Figure 2.5: The Production Possibilities Frontier with Increasing Costs. *[See image description].*

Since the PPF indicates the production possibilities facing the economy (i.e., the various output combinations that the economy can produce), how does the society choose the combination of the two goods that produces the highest economic benefit at the lowest cost? In other words, how does the society allocate its resources to get the maximum benefit in terms of well-being? Since the PPF represents only the supply side of the economy, we must consider the preferences and income of the society. We introduce society's preferences through the use of community indifference curves.

An **indifference curve** shows the various combinations of consumption quantities of two goods that lead to the same level of satisfaction or economic well-being. The assumptions behind indifference curves are:

- Completeness — consumers can compare and rank all possible consumption bundles;

- Transitivity — if consumption bundle B is preferred to bundle A and bundle C is preferred to bundle B, then bundle C is preferred to bundle A;
- More consumption is always better.

We can think about a map of indifference curves — an infinite number of indifference curves radiating outward from the origin. Consumption bundles on an indifference curve further away from the origin are preferred to bundles on lower indifference curves. Along any indifference curve, the consumer faces a trade-off between quantities of the two products if he or she wants to maintain the same level of satisfaction. **Figure 2.6** shows a map of indifference curves.

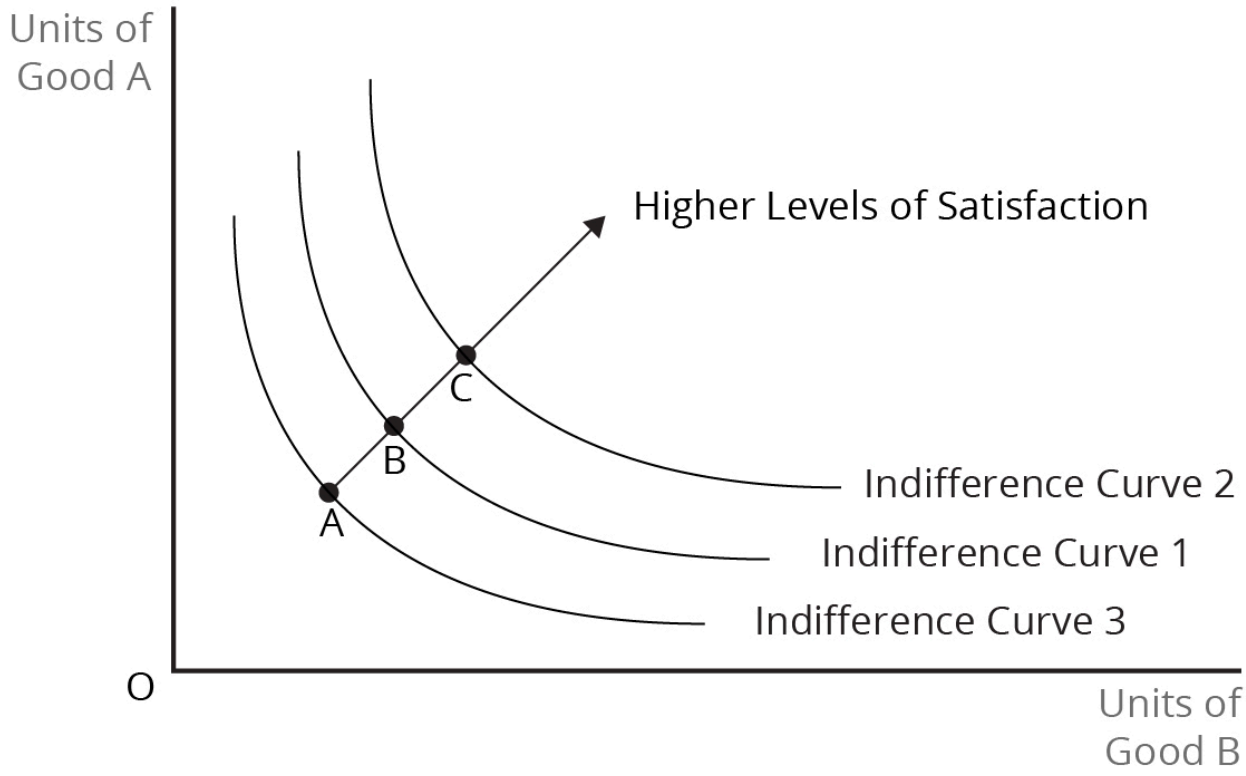

Figure 2.6: An Indifference Curve Map. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Best Choice for an Individual Consumer

While indifference curves reflect the preferences of the consumer, by themselves, they do not tell us what combination of the quantities of the two products the consumer will buy. The consumption bundle that the consumer actually buys depends on his or her available income and product prices. Formally, the consumer has a budget constraint, which shows the combinations of quantities of the two products that the consumer can buy, assuming that the income is completely spent.

For any given income, the consumer faces a trade-off in consumption that is reflected in the ratio of the prices of the two products. That is, if the consumer buys more of one product, he must buy less of the other product. This price ratio, or the relative price, is equal to the slope of the budget constraint. As a result, the budget

constraint is often called the price line. Given the budget constraint, the consumer will choose a consumption bundle that provides the highest level of satisfaction. This quantity combination of the two products is given by the point of tangency between the price line and the highest attainable indifference curve**. Figure 2.7** shows the best choice between two goods for the consumer.

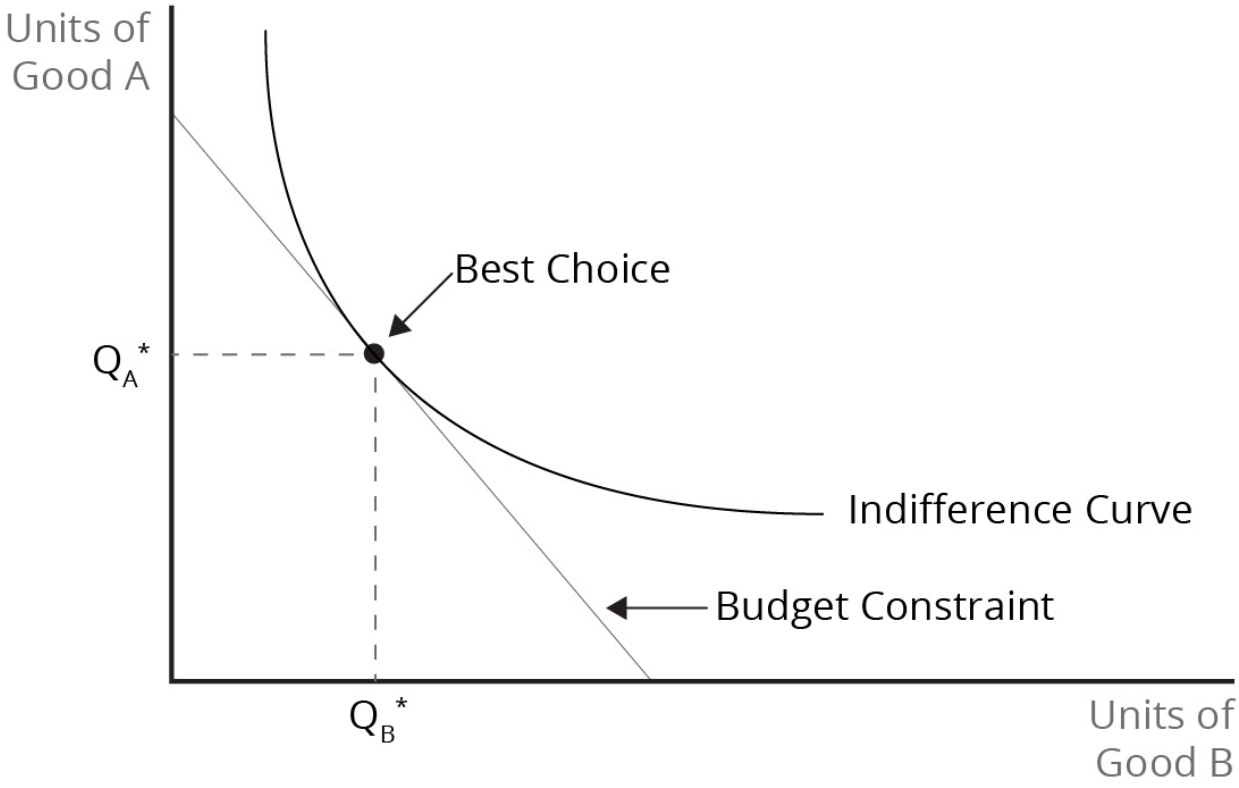

Figure 2.7: The Consumer's Best Choice Using Indifference Curves and the Budget Constraint. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Best Choice for the Nation

To analyze international trade, we use community indifference curves to reflect the preferences of a nation. Community indifference curves show how the economic well-being of the nation (or, more generally, a group of people) depends on the bundle of products consumed by the nation. The nation's choice of consumption bundle is determined in a manner similar to that for the individual. We use community indifference curves together with a price line, representing the national budget constraint, as the basis for determining the combination of the quantities of the two products that the nation consumes.

We must note that economic theory raises questions about the application of community indifference curves. Because the preferences of individuals differ, the shapes of indifference curves for different individuals will vary. Therefore, aggregating individual indifference curves into community indifference curves to represent national preferences is problematic. Also, for related reasons, the concept of national well-being is not well defined – higher national well-being does not mean that everyone is better off since what constitutes a benefit from consumption will vary among individuals.

Image Descriptions

Figure 2.3 International Trade Under Constant Costs

The image consists of two graphs labelled (a) Country X and (a) Country Y, representing Production Possibilities Curves (PPC) under constant costs before trade. Both graphs display two axes representing quantities of two different goods, Good A on the y-axis and Good B on the x-axis.

The line on the Country X graph originates at 80 units of Good A on the vertical axis and ends at 40 units of Good B on the horizontal axis. The curve has a labelled point of "Complete specialization" at the beginning of the and is labelled "2:1," indicating a relationship between the production of Good A and Good B.

The line on the Country Y graph for Country X originates 30 units of Good A on the vertical axis and ends at 60 units of Good B on the horizontal axis. The curve has a labelled point of "Complete specialization" at the end of the and is labelled "0.5:1," indicating a relationship between the production of Good A and Good B.

[back]

Figure 2.4: International Trade Under Constant Costs, Before and After Trade

The image consists of two graphs labelled (a) Country X and (b) Country Y. Both graphs are labelled 'Good A' on the vertical axis and 'Good B' on the horizontal axis. The scales on the axes differ between the two graphs.

For graph (a) Country X, the Good A axis and Good B axis extend to 80 units. A line extends from Good A 80 downward to Good B 40. Dotted lines intersect the line at the label 2:1, which is further labelled "Before Trade." A line extends from Good A 80 downward to Good B 80, further to the right of the first line. Dotted lines intersect the line at a slightly higher point, at the label 1:1, which is further labelled "After Trade".

For graph (b) Country Y, the Good A axis and Good B axis extend to 60 units. A line extends from Good A 30 downward to Good B 60. Dotted lines intersect the line at the label 5:1, which is further labelled "Before Trade". A line extends from Good A 60, higher than the first line, downward to Good B 60. Dotted lines intersect the line at a slightly higher point, at the label 1:1, which is further labelled "After Trade."

[back]

Figure 2.5: The Production Possibilities Frontier with Increasing Costs

The image displays a graph with two axes: the vertical axis (y-axis) is labelled "Good A" and is marked with the number 80 at the end; the horizontal axis (x-axis) is labelled "Good B" with a marked just past center at 60. Two points with line tangents are marked on the curve: the higher point "y" with a ratio of 1:1 above it and a lower point "z" with a ratio of 1:4 below it.

[back]

Figure 2.6: An Indifference Curve Map

The image presents a graph with a vertical axis labelled "Units of Good A," and a horizontal axis labelled "Units of Good B," with the letter "O" at the origin where the axes meet. Three smooth, convex curves extend from the upper left to the lower right, labelled as "Indifference Curve 3," "Indifference Curve 1," and "Indifference Curve

2," from left to right. A diagonal line intersects all three curves, beginning on Curve 3 and moving up to the right ending beyond Curve 2 with an arrowhead and labelled "Higher Levels of Satisfaction" The three points of intersection on the line are labelled "A," on Curve 3, "B" on Curve 1, and "C" on Curve 2.

[back]

Figure 2.7: The Consumer's Best Choice Using Indifference Curves and the Budget Constraint

The image shows a graph with a vertical axis labelled "Units of Good A" and a horizontal axis labelled "Units of Good B." There is a convex curve labelled "Indifference Curve." A straight, downward-sloping line labelled "Budget Constraint" is to the left of the curve. The point where the Budget Constraint is tangent to the Indifference Curve is marked as the "Best Choice" and labelled with a bold dot. From the dot, dashed lines lead horizontally and vertically to the respective axes, and at the intersections, they indicate the number of goods A and B at the optimal choice, marked as "Q_A*" and "Q_B*," respectively.

[back]

2.4 Production and Consumption, Before and After Trade

To determine the best combination of consumption quantities of two goods for a nation, we must bring together the supply and demand sides of the economy. That is, we must bring together the production possibilities frontier (PPF) and the map of community indifference curves. To determine the benefits of international trade, we compare the best combination of production and consumption quantities for the nation before and after international trade.

Before International Trade

Before trade, a country must produce the combination of quantities of the two products that maximizes the nation's economic well-being. That is, a country must allocate its resources so that it achieves the maximum benefit at the lowest cost of resources. The relative resource cost – i.e., the opportunity cost of production – is given by the slope of the PPF. Meanwhile, the relative price that society is willing to pay is given by the slope of a community indifference curve. The nation will choose the combination of the quantities of the two products so that the marginal opportunity cost (i.e., the cost ratio) is equal to the relative price (i.e., the price ratio). At that point, the value of national production is maximized before trade.

Graphically, this means that the nation chooses a combination of production and consumption quantities indicated by the point of tangency between the nation's PPF and the highest attainable community indifference curve. At that point, the value of national production is maximized in the absence of trade – that is, the nation will have allocated its resources to get the highest benefit at least cost. At the no-trade equilibrium, the quantities of the two goods produced are the same as the consumption quantities. **Figure 2.8** shows the no-trade equilibrium for the nation, i.e., the best quantity combination of the two goods.

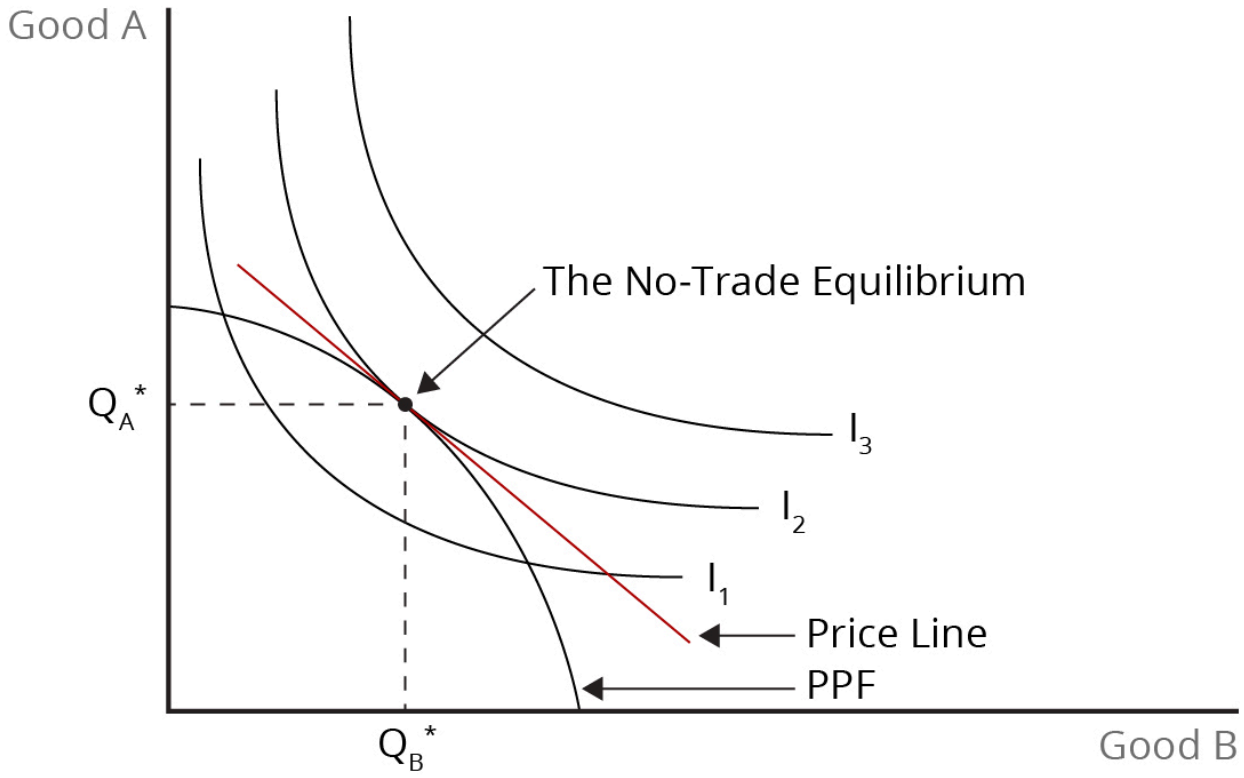

Figure 2.8: Bringing Production Possibilities and National Preferences Together. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

After International Trade

To introduce international trade, we must consider the equilibria before trade in two different countries. Since the PPFs and marginal opportunity costs will be different for both countries, relative prices will differ. The difference in relative prices before trade provides the immediate reason for trade. The country that produces a good at a lower opportunity cost will export it and import the other good. The price of the export good will rise in both countries due to the additional source of demand. Meanwhile, the price of the import good will fall due to increased availability in the domestic market. In both countries, producers will respond to the higher price of the export good by producing more and to the lower price of the import good by producing less.

Because both countries are now producing more of the export good, they can now sell excess production of the good in which they have a comparative advantage and use the earnings to satisfy the deficits that emerge for the good in which they are at a comparative disadvantage. The respective points of consumption for both countries will lie along the international price line (i.e., the international terms of trade line), which is tangent to the respective PPFs at the after-trade points of production. Both countries will trade along the international price line away from their after-trade points of production until each reaches a point of tangency with the highest attainable community indifference curve.

Once we have established the production and consumption quantities for the two countries after trade, we can determine the quantities of imports and exports. Exports arise if production is larger than domestic consumption, while imports result if production is less than consumption. We find that, in equilibrium, trade

is balanced for both products, with exports from one country being equal to imports into the other. We can summarize the export and import quantities for both countries using trade triangles, which are bounded by export and import quantities and the international price line. **Figure 2.9** shows the free trade equilibrium and the effects of free trade on production, consumption, and international prices.

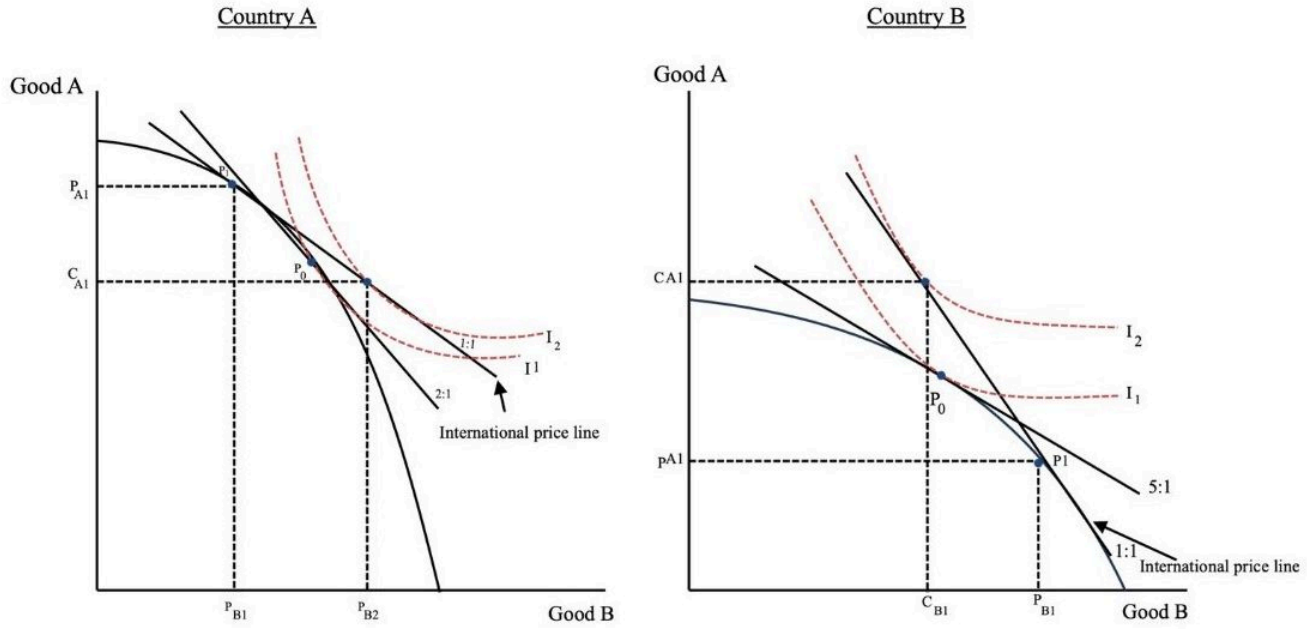

Figure 2.9: The Effects of Free Trade on Production, Consumption, and Price. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Benefits from Trade

International trade provides benefits for the participating countries. We can demonstrate the gains from international trade in two ways. The first is that trade allows each country to consume a combination of the quantities of the two goods that lie beyond its PPF. We presume that a nation would prefer more consumption to less. Second, international trade allows each country to reach a higher community indifference curve than it would otherwise. However, we must recall that using community indifference curves to show national gains may hide the fact that trade may benefit some groups while hurting others.

The extent to which each country benefits from international trade depends on the international terms of trade. The international terms of trade are equal to the export price divided by the import price. The better the terms of trade for a particular country, the greater the gains from international trade as the country will be able to attain a higher community indifference curve. Stated differently, a higher export price (along with greater production) means higher income, which facilitates higher national consumption and economic well-being.

Trade Affects Production and Consumption

International trade affects the levels of domestic production and consumption of the two goods. There are two types of impacts on production. First, within each country, production expands for the export good and falls for the import good, as the expanding industry bids resources away from the shrinking import industry. With

increasing marginal opportunity costs, each country only partially specializes in the production of the export good. Second, the shift from the situation before trade to the situation after free trade results in more efficient global production. This is because each country increases the production of the good in which it is initially the lower-cost producer. Efficiency gains result in increased global production with international trade compared with the situation before trade.

In each country, trade also alters the consumption quantities for each product. Based on the substitution effect, the population of each county purchases more of the imported product whose price has fallen because of international trade. In addition, the increase in real income in both countries as average prices fall allows consumers to purchase more of the imported product. Thus, consumption of the imported good definitely increases. However, the consumption quantities of the exported product may increase, decrease, or remain the same after trade, depending on whether the negative substitution effect is smaller than, larger than, or equal to the positive income effect. Overall, though, consumption in both countries will increase.

What Determines the Pattern of Trade

The immediate basis for international trade is that relative prices for particular products differ between countries before trade. But why do prices differ? Prices may differ because the production conditions between countries differ due to resource availability or the state of technology. Prices can also vary because of differences in domestic demand conditions and differences in economies of scale. Economies of scale lower average production costs and, therefore, can reduce prices. Another factor that can cause prices to differ between countries before trade is differences in government policies. Some policies, such as input taxes and regulation, can raise prices, while other policies (e.g., input subsidies) can lower prices. Conventional theories of international trade assume that demand conditions are similar and focus on production conditions as the reason for initial price differences across countries.

Image Descriptions

Figure 2.8: Bringing Production Possibilities and National Preferences Together

A graph with the vertical axis labelled “Good A” and the horizontal axis labelled “Good B.” A concave curve labelled as “PPF” (Production Possibility Frontier) slopes downward from the middle upper left to the middle-lower right. A straight line labelled the “Price Line” runs as a tangent on PPF. Three convex indifference curves are labelled I_1, I_2, and I_3. The point where the price line is tangent to the PPF and I_2 is labelled “The No-Trade Equilibrium” and is marked by a dot with a vertical and a horizontal dashed line extending to the axes to indicate the equilibrium quantities of Good A (Q_A) and Good B (Q_B).

[back]

Figure 2.9: The Effects of Free Trade on Production, Consumption, and Price

The image contains two graphs titled Country A on the left and Country B on the right. Each graph has two

axes: the vertical axis is labelled “Good A” and the horizontal axis is “Good B.” The points where the axes intersect are in the lower left corner.

Country A has a downward convex curve, and two downward sloping lines, which are labelled 2:1 and 1:1, all intersect each other towards the top of the graph; the 1:1 line extends further along the x-axis and is labelled “International price line.” To the right of and tangent to each sloping line is a dotted concave curve, labelled I_1 and I_2, respectively. The intersection of the sloping lines and dotted curves is marked by dots. The dot on the upper left of the graph, which is on the convex curve and International price line, is labelled P_1. To the right and down, a dot marks the intersection of the convex curve, the 2:1 line and I_1 and is labelled P_0. Slightly down and to the right, the dot on the International Price line and I_2 is not labelled. P_1 has a horizontal dotted line to the axis marked P_{A1} and a vertical dotted line to the axis marked P_{B1}. The unlabelled dot has a horizontal dotted line to the axis marked C_{A1} and a vertical dotted line to the axis marked P_{B2}.

Country B is similar to Country A, but the lines and curves have different positions. The downward convex curve begins lower on the vertical axis and ends further out on the horizontal axis. The International price line slopes more steeply and is labelled 1:1. The second line is labelled 5:1 and begins lower on the vertical axis and extends further on the horizontal axis than the International price line. An unlabelled dot in the center marks the intersection of the International price line and I_2, with a horizontal dotted line to the axis marked C_{A1} and a vertical dotted line to the axis marked C_{B1}. Below this is dot P_0, which is the intersection of the convex curve, the 5:1 line, and I_1 curve. To the right and further down is dot P_1, where the International price line and the convex curve meet; the horizontal dotted line from this dot to the axis is labelled P_{A1} and the vertical dotted line to the axis is labelled P_{B1}.

[back]

Chapter 2 Summary

LO 2.1 The Importance of Economic Theories and Models

- An economic model is a simplification of economic reality, which allows us to observe, understand, and make predictions about cause and effect in the real world.
- Economists use the scientific method to develop and discover useful economic models. A workable model provides reasonable predictions when applied to real-world situations.
- We must use economic models with caution, interpreting their predictions within the context of their assumptions.

LO 2.2 The Theories of Absolute Advantage and Comparative Advantage

- According to Adam Smith, absolute advantage arises from the ability of a country to make a product at lower input cost (i.e., using a smaller quantity of labour) than another country.
- Ricardo, advancing the idea of comparative advantage, showed there was a basis for trade even if a country had no absolute advantage in the production of any good.
- Comparative advantage arises from the ability of a country to produce a good at lower opportunity cost than another country.
- Trade based on comparative advantage benefits participating countries by facilitating greater production and consumption and lower product prices.

LO 2.3 The Benefits from International Trade Using the PPF and Indifference Curves

- We demonstrate the benefits from trade by comparing the economic outcomes (specifically regarding production, consumption, and prices) before trade and after trade.
- The production possibilities frontier, along with community indifference curves, can be used to demonstrate the underlying reason for, and benefits from, trade.
- If opportunity costs are constant, the PPF is linear; if opportunity costs are increasing, the PPF is concave.

LO 2.4 The Effects of International Trade on Production, Consumption, and Prices

- Countries specialize in the production and export of the good in which they have a comparative advantage while importing the good in which they are at a comparative disadvantage.
- The price of the export good rises in both countries while the price of the import good falls.
- International trade increases economic well-being as participating countries attain higher levels of consumption.
- Within each country, there are changes in production and consumption and average prices fall.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=120#h5p-2

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Attributions

Figure 2.1: The Scientific Method reuses Figure 1.18 in "1.2 The Process of Science" from Concepts of Biology by OpenStax – Rice University, licensed under a Creative Commons Attribution 4.0 International License, except where otherwise noted. Access for free on the OpenStax website.

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CHAPTER 3: HECKSHER-OHLIN AND OTHER TRADE THEORIES

Chapter 3 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Explain the Heckscher-Ohlin theory and highlight its main implications.
2. Evaluate the shortcomings of the standard trade model as an explanation for intra-industry trade.
3. Examine alternative theories of international trade based on monopolistic competition, oligopoly, product differentiation, and economies of scale.
4. Analyze the influence of technological change on the location of production and on international trade, drawing on the product life cycle model.
5. Examine the implications of economic growth for a country's volume of trade and its terms of trade.

Think About It!

Reflection Questions

Before we get into our discussion, we encourage you to reflect on the following questions:

1. According to the theory of comparative advantage, a country should export products that it can produce at relatively low opportunity cost. What factors are the main causes of comparative advantage?
2. Do you think a country can maintain its comparative advantage indefinitely? If your answer is no, identify the likely reasons for changes in comparative advantage over time.
3. The theory of comparative advantage suggests that countries should export one type of product (e.g., coffee) and import a very different type of product (e.g., clothing). Do you think this idea explains real-world trade fully?

4. A significant amount of trade takes place between countries with similar resources and similar technologies. What do you think explains this?

Introduction

In this chapter, we begin by discussing the Heckscher-Ohlin (H-O) theory of international trade and its key implications. This theory explains comparative advantage by indicating that countries should export products that intensively use the resources they have in abundance and import products that intensively use their scarce resources. It provides additional insight in the distribution of the gains by highlighting that owners of resources used heavily in the production of the export good will experience rising incomes at the expense of owners of more expensive scarce resources. One important implication of the H-O theory is that the prices of the resources embodied in traded products will tend to be the same across trading partners.

Second, while standard trade theory – including the H-O model – explains **inter-industry trade** well enough, it does not explain the two-way trade in similar products, i.e., **intra-industry trade**. Therefore, we examine other trade models which use different assumptions from those of the standard theory. Broadly, these models incorporate features of imperfect competition and enhances our understanding of trade as well as its implications for economic well-being. One particular model provides an intuitive explanation of intra-industry trade, largely in manufactured products. Specifically, these models were based on **monopolistic competition**, global **oligopoly**, **product differentiation**, and **economies of scale**.

Third, we note that the standard theory of trade provides an analysis of international trade at a particular time – that is, comparative advantage is analyzed on a static basis. However, we recognize that trade is dynamic and that comparative advantage can change over time. Among the possible reasons for shifts in comparative advantage are improvements in technology. In this regard, we consider the **product life cycle** theory of trade which demonstrates how changes in technology can alter the location of production across countries and the pattern of trade. The life cycle theory demonstrates how a country which develops and initially exports a new product can end up importing it.

Last, we explore increases in available resources or technological improvements that make **economic growth** possible and facilitate higher levels of production and consumption. Growth alters a country's willingness and ability to engage in international trade. We note that, while the increase in production always provides a benefit, changes in international prices can either increase or reduce this positive effect on a country's economic well-being.

3.1 The Heckscher-Ohlin Theory and Its Implications

The Heckscher-Ohlin Model

We saw earlier that the immediate basis for the pattern of trade was that relative product prices differed between two countries before trade. This initial difference might be due to differences in production, or demand, or some combination of these factors. We represent production conditions – influenced by resource availability and technology – by the production possibilities frontier. Similarly, we represent demand conditions by community indifference curves, which reflect a nation's preferences. Therefore, the eventual determinants of comparative advantage are resource availability, technology, and demand. The standard theory of trade focuses on production as the basis for the initial pre-trade price differences and assumes that demand conditions are similar across countries.

The Heckscher-Ohlin model assumes that we are dealing with a world in which two countries are producing two goods, using two resources (e.g., capital and labour). The resources are mobile within each country but not internationally. While resource endowments are different in the two countries, they are fully employed within each country**. Perfect competition** exists in all markets, which implies that products and resources are essentially the same (i.e., homogeneous), prices are given, information is readily available, and firms are free to enter and exit any industry in response to changes in profits.

The **Heckscher-Ohlin (H-O) theory** (or the factor-endowments theory) states that initial differences in relative prices and, therefore, comparative advantage stem from differences in resource endowments and the proportions of the resources used in production. It asserts that a country will export those products that use its relatively abundant resource intensively and will import those products that use its relatively scarce resources intensively (Carbaugh, 2015; Pugel, 2020).

Let's Explore: Heckscher-Ohlin Model

Learn more about the Heckscher-Ohlin model by reading 5: The Heckscher-Ohlin (Factor Proportions) Model in International Trade – Theory and Policy (by Steve Suranovic, made available by LibreTexts Social Sciences).

A country is resource-abundant if it has a higher ratio of a specific resource to other resources than does the

rest of the world (Pugel, 2020). For instance, if Canada has a higher ratio of capital to labour than the rest of the world (i.e., $K_C/L_C > K_{RoW}/L_{RoW}$), then Canada is capital-abundant, and the other country is capital-scarce. A product is resource-intensive if the resource cost represents a greater share of its value than it does for other products (Pugel, 2020). If $(K/L)_m > (K/L)_a$, where m and a denote manufacturing and agriculture, respectively, then the manufacturing industry is capital-intensive, and agriculture is labour-intensive. When a resource is abundant, its relative cost is low, and the prices of the products that intensively use that resource will also be low. This, of course, makes sense intuitively: If a country has a lot of a resource, then that resource will be relatively cheap, and if a significant amount of that resource is used in production, then the resulting products will also be cheap.

The Ricardian model (see **Chapter 2**) and the standard theory indicate that the opening up of international trade causes shifts in production within the country and provides benefits for some groups while other groups experience losses. The export sector expands in light of the additional demand from foreign buyers, while the import-competing sector contracts due to the availability of foreign supplies in the domestic market. The beneficiaries in this situation are the producers of the exported good and the consumers of the imported product. Meanwhile, the losers are the domestic consumers of the exported good and the domestic producers of the imported good.

While it projects similar shifts in production between sectors as well as gains and losses in well-being because of trade, the H-O theory also provides us with greater insight into the potential winners and losers from international trade. Specifically, it goes beyond the basic distinction between producers and consumers and helps us to understand how international trade affects earnings based on the ownership of productive resources. The H-O theory also demonstrates how production and economic well-being can change over time – from the short run to the long run – and this is in contrast to the static analysis of the Ricardian and standard models (Pugel, 2020; Carbaugh, 2015).

Given initial differences in relative product prices, the opening of international trade alters production within trading countries. The export sector that uses abundant resources intensively benefits from low costs and increased production. Meanwhile, the import sector that uses the scarce factor intensively experiences higher-cost production and becomes smaller. Moreover, the changes in production are different in the short run from those in the long run.

In the short run, while the sizes of the two sectors change, the extent of the growth or contraction is limited by the resources currently engaged in the production in the respective sectors. In the long run, resources move between sectors in response to available returns, which allows for a fuller adjustment to occur. The result is that the export sector expands further while the import sector continues to shrink.

In the short run, groups tied to the expanding sector gain while those tied to the shrinking sector suffer losses. As resources employed in the expanding and contracting sectors shift as prices change in the long run, rising supplies of the resource used intensively in the expanding sector will cause its returns to fall back from their higher short-run levels. Conversely, the price of the factor used intensively in the shrinking sector will rise from its lower short-run levels. In the long run, the price of the factor used intensively in the expanding sector rises. However, the price of the factor used intensively in the contracting sector falls. In summary, international trade will make some groups better off and others worse off in absolute terms.

Implications of the Heckscher-Ohlin Model

In this section, we set out the major implications of the H-O theory in terms of the Stolper-Samuelson theorem, specialized factor pattern, and factor price equalization theorem.

The effects of trade on the distribution of factor income are summarized in the **Stolper-Samuelson theorem**. This theorem states that an event that changes relative product prices in a country has two clear effects:

- It raises the real income of the factor used intensively in the industry where price is rising; and
- It lowers the real income of the factor used intensively in the industry where price is falling.

This theorem suggests that while international trade may provide gains in well-being for a nation, there are definite winners and losers. An extension of the Stolper-Samuelson theorem is the "magnification effect." which holds that the change in the price of a resource will be greater than the change in the price of the product that uses the resource intensively in its production (Carbaugh, 2015).

An important assumption of the H-O theory is that resources are free to move between sectors within a particular country. However, while such factor movement may take place in the long run, in many instances, resources are effectively immobile in the short run. The **specialized factor theorem**, which addresses this issue, states the following:

- The more a factor is concentrated in producing a good whose relative price is rising, the larger the gain accruing to this factor due to the increase in the good's price; and
- The more a factor is concentrated in producing a good whose relative price is falling, the more it stands to lose from a decrease in the good's price.

International trade shifts demand away from the scarce resource and toward the abundant resource. In each trading partner, this boosts the price of the resource that was cheap before trade and lowers the price of the resource that was expensive before trade. Eventually, this process causes the price of the same resource to equalize across countries. the **factor-price equalization theorem** states that free trade equalizes the prices of the individual production factors between two trading partners, implying that the owners of a particular resource will earn the same income in all trading countries even though resources were immobile across countries.

However, factor price equalization does not hold in the real world for a number of reasons. Among trading countries, labour is not of the same quality and technology and trade policies are usually different. In addition, transportation costs can prevent product prices from equalizing. Still, there is a general tendency for factor prices to move toward equality between countries over time. For instance, while indices of hourly compensation indicate significant differences across countries, wages in the manufacturing and information technology sectors in China and India, respectively, have risen relative to those in the United States (Pugel, 2020; Carbaugh, 2015).

Researchers have done a number of studies that have examined whether the core result of the H-O theory is borne out in the real world. Countries with relatively large resource endowments tend to export products that embody large amounts of those resources. In the 1950s, Wassily Leontief conducted the first test using U.S. data and two factors of production – capital and labour. Leontief expected to find that the United States, given its presumed relative abundance of capital, would export capital-intensive products and import labour-intensive ones. However, the results of the initial study failed to confirm the result of H-O theory. Leontief found that U.S. imports were more capital-intensive than U.S. exports, a result that was labelled the **Leontief paradox**.

Leontief and other researchers conducted further tests of the H-O theory which involved more countries and more factors of production. They believed the view that the pattern of international trade should reflect the unequal distribution of resources across countries if the H-O theory were valid. These tests showed that international trade patterns were more consistent with the prediction of the H-O theory in that countries tended to export products that used their abundant resources intensively. Given the greater disaggregation of the factors of production, the United States exports were found to be skill-intensive products, reflecting an abundance of human capital and superior technology.

Review: The Heckscher-Ohlin Model

Review your understanding of Heckscher-Ohlin theory and the Leontief Paradox by watching this video [7:01].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=135#oembed-1

Source: International Business Studies. (2014, June 14). *Trade theory Heckscher Ohlin theory plus the Leontief Paradox.* [Video]. YouTube. https://youtu.be/bpKACOG_t_Q?si=F05cIIlqqE51g-QS

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3.2 The Shortcomings of the Standard Model as an Explanation of Intra-Industry Trade

The patterns of real-world international trade conform to a significant degree with the predictions of the standard model, which indicate that countries should engage in trade to exploit cost differences that arise from differences in resource endowments and differences in technology and productivity. The standard theory of international trade – including the Heckscher-Ohlin model – suggests that countries should export one type of product or service and import a substantially different type of product. International trade should be inter-industry. And indeed, a lot of international trade takes this form.

However, much trade does not seem to fit well with the standard theory. The theory of comparative advantage – including the H-O theory – suggests that countries similar in resource endowments and technology should not trade a lot with each other. In practice, however, developed countries engage in significant two-way trade in which they individually export and import the same or similar products. This is especially true where these countries are close to each other geographically. The H-O theory does not give a good explanation of two-way trade in similar products or intra-industry trade.

To understand intra-industry trade, we look at models that go beyond comparative advantage and its assumption of perfect competition. In the following sections, we will expand our understanding of trade by considering some theories which incorporate aspects of **imperfect competition**, which implies that producers have some degree of market power (Pugel, 2020; Carbaugh, 2015). The first theory we will consider is based on product differentiation and monopolistic competition; the second is premised on global oligopoly; and the third is premised on the tendency for firms in an industry to cluster in specific geographic areas. Economies of scale are an important element in all of these cases. Economies of scale, monopolistic competition, and oligopoly will be discussed later.

Review: Intra-Industry Trade

Review your understanding of intra-industry trade by watching this video [13:08].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=151#oembed-1

Source: Marginal Revolution University. (2015, September). *Intra Industry Trade.* [Video]. YouTube. https://youtu.be/DUmgU_F3Imk?si=ZpQdGof4HJs7zdzt

Did You Know? Economies of Scale

Economies of scale occur when increases of inputs lead to a greater than proportionate increase in production. Assuming that factor prices remain constant, this causes the average cost of production to decline as production increases. Diseconomies of scale arise when increases in factor inputs cause a less-than-proportionate increase in output and a rising average total cost of production. Constant returns to scale occur when increases in factor inputs lead to proportionate increases in cost and output so that the average production cost remains constant regardless of the output level. Economies of scale, constant returns to scale, and diseconomies of scale are depicted in **Figure 3.1**.

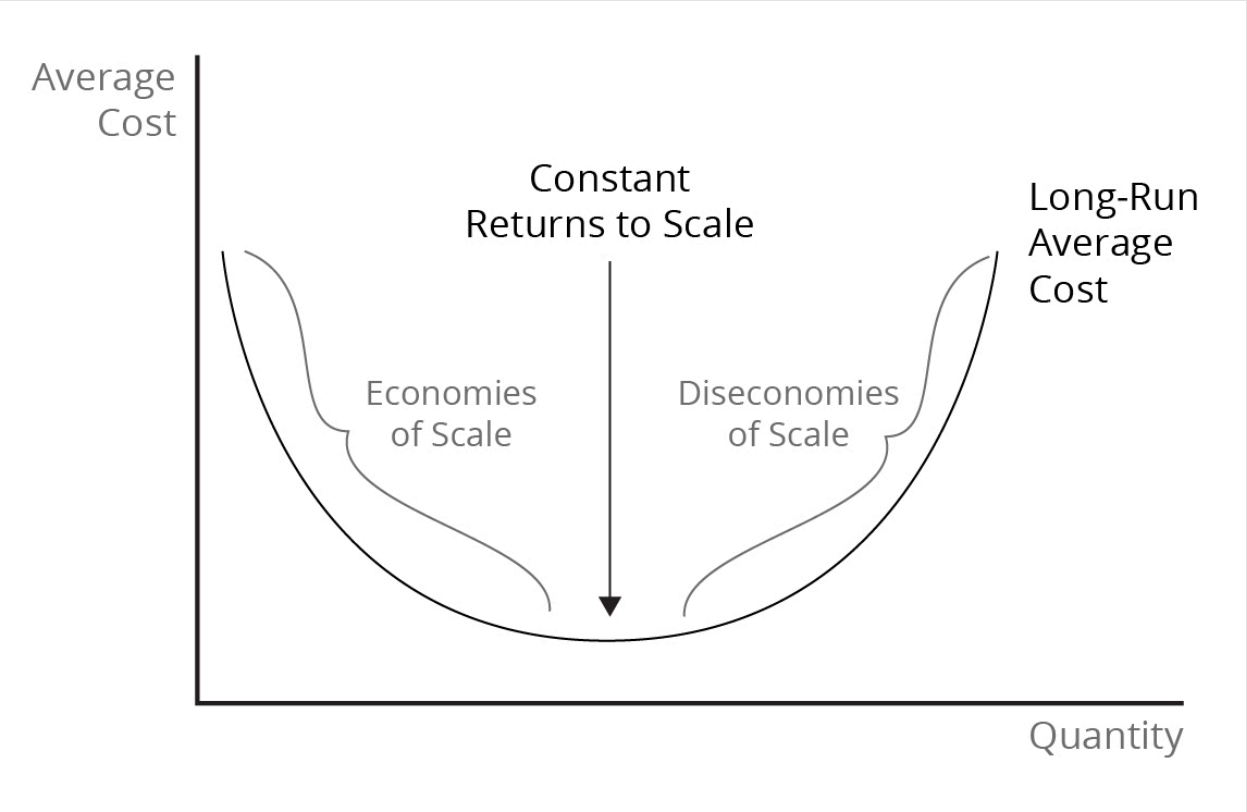

Figure 3.1: Economies of Scale: The Long-Run Average Cost Curve. *Average cost initially falls as the quantity of output increases and eventually rises. When average cost is falling, there are economies of scale; when average cost is constant, there are constant returns to scale; and average cost is rising, there are diseconomies of scale. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

We can distinguish between **internal economies of scale** and **external economies of scale**. Internal economies of scale result when increases in output by the firm cause its average production costs to decline.Internal economies of scale push firms to become larger so that, if scale economies are substantial, only a few large firms will produce the industry's output. With the few firms dominating the industry recognizing their interdependence, a key issue will be how much competition results. If the firms in this oligopolistic industry compete vigorously, output will be large and average costs and prices low. On the other hand, if firms collude, output would be smaller, prices would be high, and this situation could last for a long time. The presence of economies of scale can lead to another outcome. If scale economies are not too large, then there may be room for a significant number of firms in the industry. In addition, if the firms in the industry supply many versions of the same basic product, then monopolistic competition results. In this market structure, many firms produce and sell limited quantities of different versions of the basic product. While each firm would have some control over the price of its product, such market power would be temporary, as competition based on price and product quality eventually erodes it. External economies of scale are premised on the size of the industry within a particular geographic area. As industry output expands, the average cost of the typical firm producing the product in that area declines. External economies help explain why firms in some industries cluster in specific areas. External economies can arise if the concentration of firms in a

geographic area encourages greater local supplies of particular factors (e.g., specialized labour) to the industry. Some examples of clustering encouraged by external economies are the financial services industry in London and New York City, the movie-making industry in Hollywood, and the information technology industry in Silicon Valley (Pugel, 2020; Carbaugh, 2015).

Review: Trade and External Economies of Scale

Review your understanding of trade and external economies of scale by watching this video [19:07].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=151#oembed-2

Source: Marginal Revolution University. (2015b, September 16). Trade and external economies of scale [Video]. YouTube. https://www.youtube.com/watch?v=jPE9yE9OsME

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Image Descriptions

Figure 3.1: Economies of Scale: The Long-Run Average Cost Curve

The image is a diagram consisting of a graph with a vertical axis labelled “Average Cost” and a horizontal axis labelled “Quantity.” A smooth, concave curve is centred within the coordinate system, which initially descends steeply, then levels out, and finally ascends gradually, labelled “Long-Run Average Cost.”

The descending portion of the curve is labelled “Economies of Scale.” A vertical arrow labelled “Constant Returns to Scale” points down to the bottom and middle of the curve. Lastly, the ascending portion of the curve is labelled “Diseconomies of Scale.”

[back]

3.3 Alternative Theories of International Trade

The first alternative theory that we consider is based on monopolistic competition and product differentiation. This theory provides the foundation to the main explanation for intra-industry trade – two-way trade in similar products. Next, we consider a model which illustrates how substantial internal economies of scale lead to a global oligopoly. Last, we discuss a model which demonstrates how external economies of scale can lead to the formation of industry clusters in a few countries. For all of these theories, we examine their implications for the pattern of trade, the terms of trade, and the division of the gains from trade.

Monopolistic Competition, Product Differentiation, and International Trade

To gain insight into why intra-industry trade is prevalent among developed countries, we consider a model of trade based on **monopolistic competition**. In this industry, there are limited external economies of scale, which implies that there is room for many firms. Firms in the industry supply different versions of the same basic product so that products are differentiated. Last, firms are free to enter and exit the industry in response to economic profits. If economic profit is positive, new firms enter, and if economic losses are occurring, some firms leave the industry. Since firms supply differentiated products, they have some pricing power. In the long run, firms in the industry earn zero economic profit as above-normal profits are eliminated by competition.

The Market Without International Trade

The domestic market before trade is characterized by a price curve, P, and an average cost curve, AC (see **Figure 3.2**). The former represents the demand side of the market, and the average cost curve represents its supply side. The price curve relates the number of product varieties on the horizontal axis to the price of the broad product. With only a very limited number of varieties available, the product price is relatively high. However, as more and more product varieties become available on the market, the typical firm loses pricing power, as each new variety represents a substitute and, therefore, an increase in competition. Price, therefore, falls with the introduction of more and more product varieties. The price curve, therefore, is downward sloping. It is also relatively flat, indicating a considerable degree of competition in the market.

Regarding the supply side, the typical firm is not able to fully take advantage of the available internal economies of scale. As increasingly more varieties of the product are introduced, individual versions are produced in smaller and smaller volumes, given the size of the market. This reduces the ability of firms to benefit from internal economies of scale. That is, the larger the number of product versions, the smaller the level of output per version, and the more limited the opportunity for exploiting economies of scale. Average cost increases as the scale of production of individual varieties falls. The average cost curve, therefore, slopes upward – the introduction of more product versions in a given market raises the average cost.

Bringing together the demand and supply sides of the market, we can determine the equilibrium price and the equilibrium number of product varieties that result. The price and unit cost curves are shown, respectively,

as P and AC in **Figure 3.2**. The equilibrium price and equilibrium number of varieties, indicated respectively as P^* and V^*, are given by the intersection of the price and unit cost curves. At the point of intersection, price is equal to average total cost, and firms in the industry are earning zero economic profit in long-run equilibrium. This represents the situation prior to trade, as depicted in **Figure 3.2**.

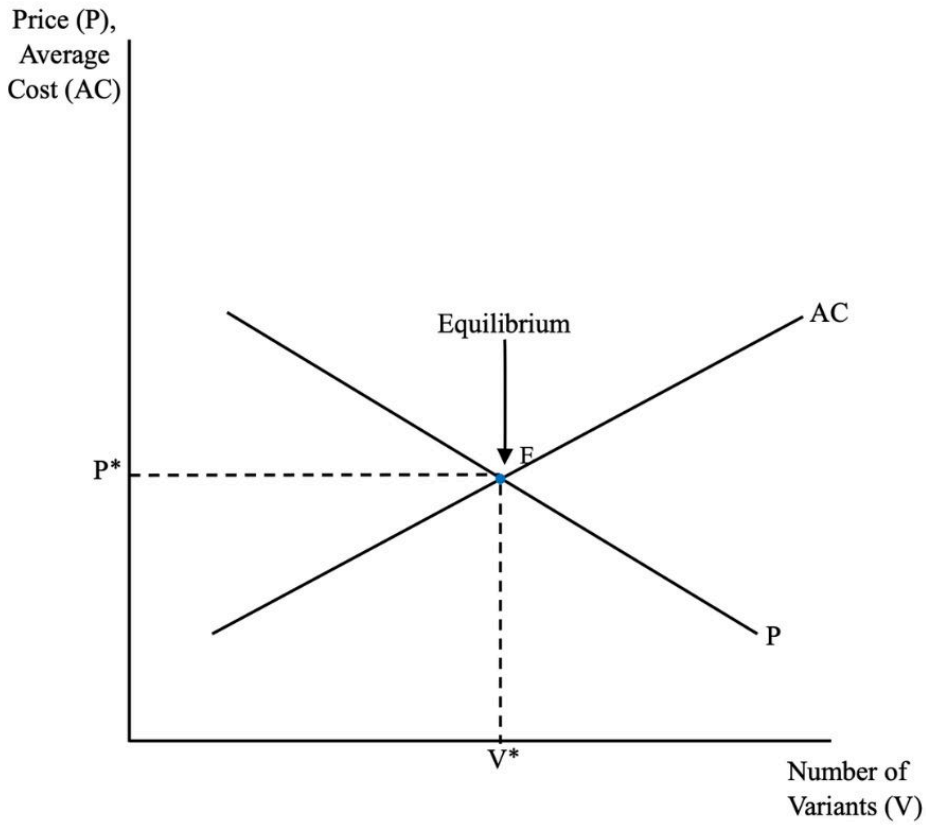

Figure 3.2: The Domestic Market Before Trade: Equilibrium. *Under monopolistic competition, price falls as the number of product variants increases. Average cost rises with increases in the number of variants. The equilibrium price and number of variants are determined by the intersection of the price curve (P) and the average cost curve (AC). [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Allowing for International Trade

To allow for international trade, we presume that equilibrium initially exists in monopolistically competitive markets for the same product in two different countries, Country A and the Rest of the World (RoW). We assume that the market in the rest of the world is larger than the market of Country A, which allows for greater economies of scale to be attained. This means that the average cost curve (AC) lies further to the right than

the AC curve for the domestic market in Country A (see **Figure 3.3**). Given similar demand conditions in both countries, the demand curve is the same for the RoW as it is for Country A. Given the larger market in the RoW and the achievement of greater economies of scale, the equilibrium price of the typical variety in the RoW is lower and the equilibrium number of varieties is larger.

With the opening up of trade, the two domestic markets become one integrated market, the world market. The bigger market allows firms to produce larger quantities and locate at lower points along their long-run average cost curves—that is, firms are better able to exploit economies of scale. This means that the aggregate average cost curve lies further to the right than either the Country A curve or the RoW curve. The world price curve is the same as those for the national markets prior to trade on the assumption that demand conditions are similar across trading countries. The resulting equilibrium price for the typical variety is lower and the equilibrium number of varieties is larger in the world market. With greater exploitation of scale economies and more competition, price falls, and a larger number of varieties is offered for sale to consumers. This situation is depicted in **Figure 3.3**.

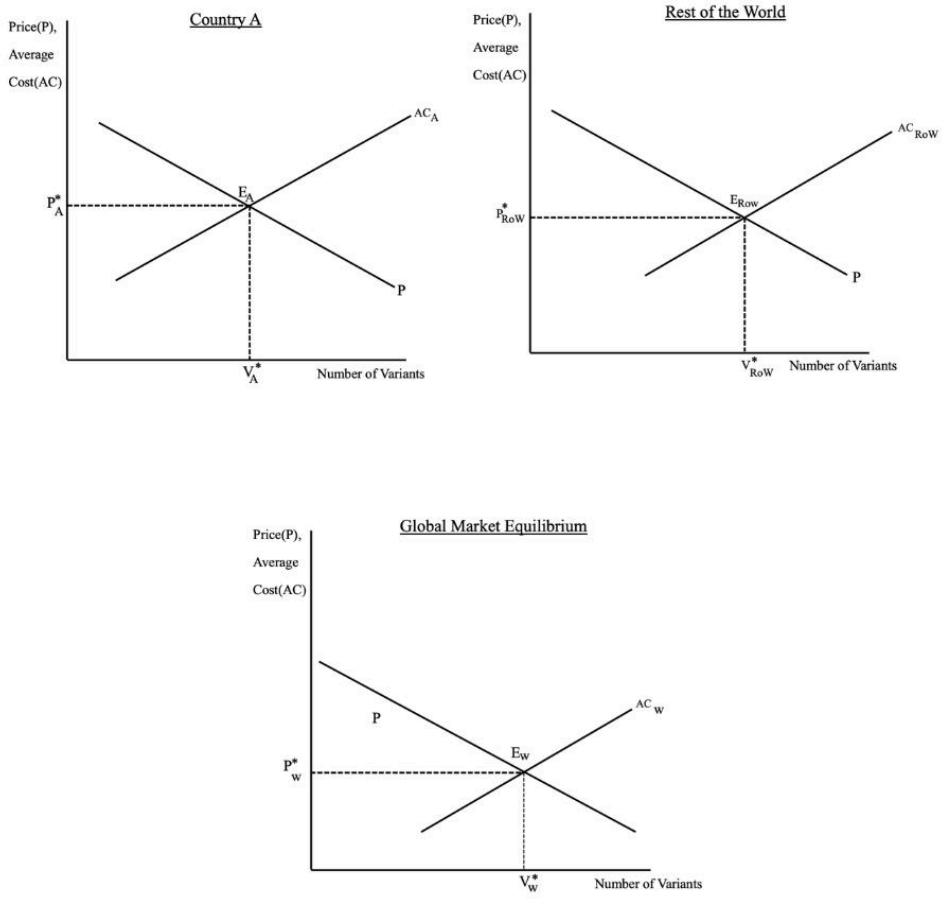

Figure 3.3: Equilibrium in the Global Market. *The equilibrium world price and the equilibrium number of variants are determined by the intersection of the price curve (P) and the average cost curve (AC) in the global market. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0..*

With the opening up of trade, firms from Country A can export their versions of the product to the rest of the

world because foreign buyers have a preference for Country A's products. Similarly, firms from the RoW can export their varieties to Country A because some buyers in Country A prefer products from the rest of the world.

Figure 3.3 shows the equilibrium in the domestic markets for Country A and the Rest of the World before international trade and equilibrium in the global market with trade.

The Basis for Trade

Economies of scale do not provide any particular production cost advantage to firms in any specific country since we assume that technology is the same across countries. Thus, economies of scale do not form the basis of trade in this model. Instead, a country's engagement in international trade is driven by product differentiation; that is, a country exports when domestic production of unique versions of the product is demanded by some consumers in foreign markets and imports when some consumers in this country demand particular varieties of the same basic product made by firms in other countries. Therefore, intra-industry trade in differentiated products can be significant, even between countries that are similar in their resource endowments and technologies.

Gains from Trade

Monopolistic competition, product differentiation, and intra-industry trade provide additional important insights into national gains from trade and the effects of trade on the well-being of different groups within a country. In this model, an additional source of national benefit from trade comes from the broader product range that is now available to consumers as a result of imports. In addition, with intra-industry trade, there is little or no effect on the distribution of factor incomes – evident in the H-O model – as inter-industry shifts in production and resource use are limited. This is because exports offset any domestic market share losses that may arise from imports. To the extent that any losses in factor incomes arise due to inter-industry production shifts, these losses will likely be compensated for by the gains to consumers from greater product diversity.

Review: Monopolistic Competition

Review your understanding of Monopolistic Competition by watching this video [16:34].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=157#oembed-1

Source: Marginal Revolution University. (2015, September). *Monopolistic competition and international trade.* [Video]. YouTube. https://youtu.be/vEExuMyjcRA?si=D5DPe9RDBSiCB-vm

Global Oligopoly and International Trade

An industry in which a few firms in different countries account for the bulk of the world's production is a global oligopoly. In a global oligopoly, firms benefit from substantial internal economies of scale, which allows only a small number of plants located in a few countries to populate the global industry. These large firms choose plant locations to maximize profits, and inherent advantages stemming from production and demand conditions are likely to be important considerations in this decision. The presence of substantial economies of scale has implications for the pattern of international trade, the pricing strategies of firms within the global oligopoly, and the division of the welfare gains from trade both within and between countries.

Countries that have the production facilities of the global oligopoly become the exporters of the product, while other countries become the importers. Firms in an oligopoly, because they are few, usually recognize their interdependence, and this influences their pricing strategy. Oligopolistic firms may choose to collude and set high prices or to compete aggressively, which leads to low prices. If firms pursue the former pricing strategy, they can earn above-normal economic profit. If firms adopt the latter strategy, any positive economic profit is eroded by competition – firms earn only a normal return. In general, it is not possible to say which price and output strategy the firms will adopt, and therefore, we present the two extremes of collusion and competition.

Pricing is critical for the distribution of gains from trade. If oligopolistic firms compete on price, output would be larger with a low price. Thus, more of the gains would go to foreign buyers and the importing country and less to the firms themselves. If firms in the industry jointly restrict output, they would earn significant economic profit on export sales and earn higher export prices. The better terms of trade mean that the firms and exporting countries gain surplus at the expense of consumers in importing countries. Moreover, the small number of countries that produce the industry's output can sustain these gains over time. To the extent that the oligopolistic firms benefit from substantial scale economies, they would be able to fend off competition from potential entrants.

External Economies of Scale, Clustering, and International Trade

Let us now turn our attention to an industry benefiting from substantial external economies of scale. External economies of scale arise when the expansion of an industry in a particular geographic area causes long-run average costs to fall for all firms in the industry in the area. To see the effects of external economies of scale, we consider a competitive industry with a large number of firms in each location and no internal economies of scale. This means that in the industry, there are many small firms which have no influence over price and obtain zero economic profit in the long run. However, the industry benefits from external economies of scale – as it expands, the average cost of the typical firm declines.

To analyze the implications of an industry benefiting from large external economies of scale, let us establish the initial position of the industry prior to an event which causes it to expand. The industry is in long-run equilibrium, with equilibrium output and price determined by the interaction of industry demand and supply. Graphically, the industry supply and demand curves intersect each other along the industry's downward-

sloping long-run average cost curve (see **Figure 3.4**). This indicates that, in long-run equilibrium, price is equal to average cost, which means that firms are making zero economic profit.

Now, suppose a shift in the preferences of foreign consumers brings about an increase in industry demand and lifts exports. Graphically, the demand curve shifts rightward and causes both price and industry output to increase in the short term. The larger production level facilitates the achievement of further external economies of scale, and average costs fall throughout the national industry. This causes the industry supply curve to shift outward to the right, and eventually, a new equilibrium is achieved at the point of intersection of the new supply and new demand curves. At this point, the industry is situated further down the industry's long-run average cost curve, resulting in a larger output, lower average cost, and a lower price. This situation is depicted in **Figure 3.4**.

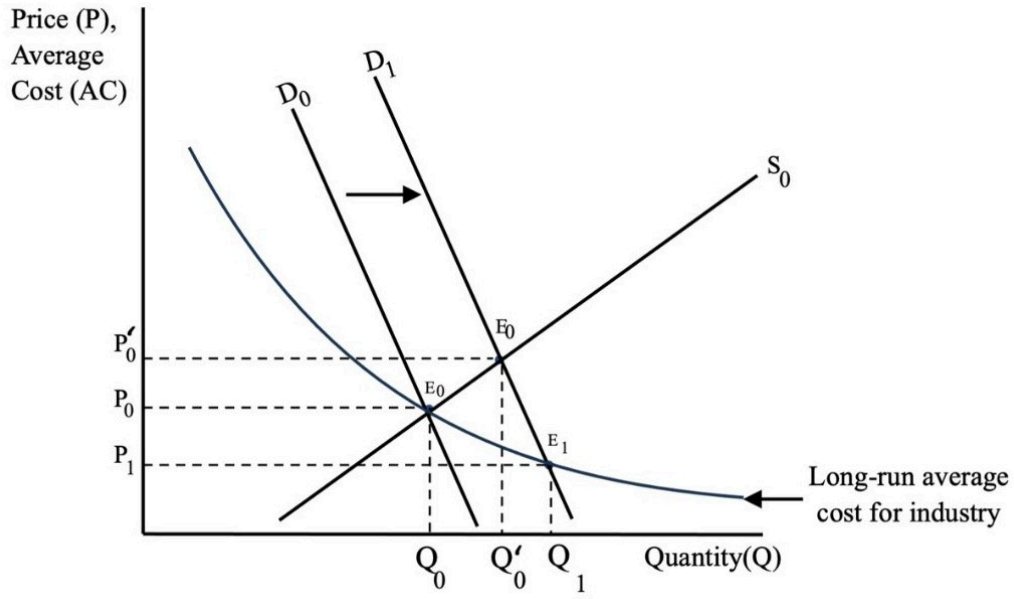

Figure 3.4: The Impact of External Economies of Scale in a Competitive Industry. *An increase in demand on a competitive industry benefits from external economies of scale. An increase in demand causes the demand curve to shift to the right, leading to a new long-run equilibrium at E1. Price falls and industry output increases in the long run. [See image description].* ***Credit:*** *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

In terms of economic well-being, producers in the exporting country gain economic surplus with the expansion of industry output. Producers in the importing country lose surplus in the face of increased import competition. Consumers in the importing country gain economic well-being considering the lower price and the increased consumption. Consumers in the exporting country also benefit from the fall in price and expanded consumption. This last result contrasts with the standard case of comparative advantage models in which the reduced domestic availability of the product due to exports causes the price in the exporting country to rise. Here, consumers in the exporting country experience an increase in surplus, whereas in the standard case, they would experience losses.

With external economies of scale, if international trade opens up, production tends to become concentrated in a few locations. Clusters of firms in some locations will expand production, and countries with those locations will export the product. Other countries will import the product as their production levels shrink. Once production is established, new potential locations cannot easily overcome the scale advantages of the established locations. As a result, dynamic gains accrue to firms that initially become established.

Image Descriptions

Figure 3.2: The Domestic Market Before Trade: Equilibrium

The image displays a graph with a vertical axis labelled “Price (P), Average Cost (AC)” and a horizontal axis labelled “Number of Variants (V).” A downward-sloping line labelled “P” intersects an upward-sloping line labelled “AC” at a point labelled “E.” There is an arrow labelled “Equilibrium” pointing down to point E. Dashed horizontal and vertical lines extend from the equilibrium point to the respective axes, intersecting at “P*” on the vertical axis and “V*” on the horizontal axis.

[back]

Figure 3.3: Equilibrium in the Global Market

The image contains three separate graph. The first graph is labelled “Country A,” and is side-by-side with the second, labelled “Rest of the World.” The centred beneath these two is the third graph, labelled “Global Market Equilibrium.” Each graph features a standard supply and demand graph layout with two axes. The vertical axis is labelled “Price (P) Average Cost (AC),” while the horizontal axis is labelled “Number of Variants.” The graphs display two intersecting lines: a downward-sloping line representing average cost and an upward-sloping line representing price. The intersection of these lines is labelled E. There is a dotted horizontal line from E to the vertical axis labelled P* and a dotted vertical line from E to the horizontal axis labelled V*. Each graph’s points and labelled are distinguished with subscript A for Country A, ROW for Rest of World, and W for Global Market. The dotted lines in the Country A graph form a square that is a quarter of the graph. The dotted lines in the Rest of the World graph form a rectangle that is a little shorter and much longer than the Country A square. The dotted lines in Global Market Equilibrium are much shorter than the rectangles in the Rest of the World.

[back]

Figure 3.4: The Impact of External Economies of Scale in a Competitive Industry

The image is a graph with “Price (P), Average Cost (AC)” on the vertical y-axis and “Quantity (Q)” on the horizontal x-axis. There are two demand curves labelled D_0 and D_1, which intersect with a supply curve S_0. An arrow shows the shift right from D_0 and D_1. A downward-sloping concave curve originating to the left of D_0 is labelled “Long-run average cost for the industry.”

The Long-run average cost line intersects D_0 and S_0 at point E_0, and D_1 at E_0 prime. D_1 and S_0 also intersect each other at E_1.

Three horizontal dashed lines extending from the E intersections to the y-axis are labelled from the top, P_0 prime, P_0 and P_1. Three vertical dashed lines extending from the E intersections to the x-axis are labelled from the left Q_0, Q_0 prime and Q_1.

[back]

3.4 Technological Change, the Location of Production, and International Trade

The H-O theory highlights differences in resource endowments as the basis for comparative advantage. In our discussion of that theory, we assumed that technology was the same across countries. Another basis for comparative advantage is differences in production technologies. That is, production will be biased in favour of the product in which the country has the more advanced technology. Technological change occurs at different rates in different countries, which means that shifts in technology-induced comparative advantage can occur over time. Technology-driven comparative advantage, therefore, is likely to be transitory. This idea of shifting comparative advantage due to technological change is reflected in the product life cycle theory.

Most technological change results from concerted research and development (R&D) efforts by governments as well as firms. Taking the world as a whole, research and development activity is concentrated in developed countries where there is an abundance of financial capital and skilled labour. In this regard, we can see a connection to the H-O theory – countries with an abundance of financial and human capital generate R&D, which uses these resources intensively. The relative abundance of these two factors provides the basis for the technological advantage that developed countries have had regarding many manufactured products.

However, while it makes sense that the national location of the development of new technologies will be in developed countries, the location where the new technologies are applied can shift across countries as the embodied spreads. Firms in other countries will have an incentive to obtain new technologies to become more competitive. In addition, the developers of new technologies will seek to profit by applying them in foreign markets. Therefore, while the new technologies will most often be initially applied in the same countries where the R&D was done, we are likely to see production of new products shift to other countries.

According to the life cycle theory, there is a predictable cycle in which the home country initially exports a product, then loses its comparative advantage to other countries, and eventually becomes an importer (Carbaugh, 2015; Pugel, 2020). When a product is first introduced, its price is likely to be high and demand limited. In addition, it may be necessary to conduct further R&D to modify the product to better fit with consumer preferences. Therefore, initial production of the new product is likely to be in the home country. Over time, however, as production technology becomes more standardized, the requirement for skilled labour for R&D will diminish. Thus, the technology spreads and the location of production shifts to countries with plentiful supplies of less skilled labour. The pattern of trade, therefore, changes in line with shifts in comparative advantage. The innovating country is at first the exporter but eventually becomes the importer of the product.

Unlike the static H-O theory, the life cycle theory is dynamic in that it addresses changes in comparative advantage over time. Still, if we consider the life cycle theory through its stages, we see that production shifts because of comparative advantage. Therefore, the life cycle theory is largely consistent with its H-O counterpart. The electronics industry is one that appears to fit the product life cycle theory well.

Review: Product Life Cycle Theory

Review your understanding of product life cycle theory by watching this video [7:04].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=163#oembed-1

Source: Business School 101. (2021, June 19). *International product life cycle theory | International business | From a business professor* [Video]. YouTube. https://youtu.be/7upJQmq_z58?si=pZVXRl1X_Ti6nqKA

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Carbaugh, R.J. (2015). International economics, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). International economics, (17th ed.). McGraw-Hill.

3.5 Economic Growth and Its Implications for Trade

Economic growth has implications for a country's involvement in trade (Pugel, 2020). Economic growth is due to an increase in a country's production capabilities. There are two basic sources of economic growth, namely, increases in a country's resource endowments and technological improvements. Graphically, an expansion of a country's production capabilities causes an outward shift in its production possibilities frontier (PPF), as in Figure 3.5. A country can experience balanced economic growth or growth biased toward the production of particular goods.

In the case of balanced growth, the PPF shifts outward proportionately. This would result in an increase in the production of both goods by the same proportion, assuming that relative product prices remain the same. **Balanced growth** occurs due to increases in endowments of all factors by the same proportion or technology improvements of the same magnitude in both sectors. **Biased growth** arises when there is a greater proportional increase in production of one of the two products. In this case, the PPF will be biased toward the faster-growing sector. Assuming that relative product prices remain the same, the production quantities of the two goods do not change proportionately. Biased growth occurs if a country's endowments of different resources increase at different rates or if improvements in technology are greater in one of the two sectors. Examples of balanced growth and biased growth are depicted in **Figure 3.5**.

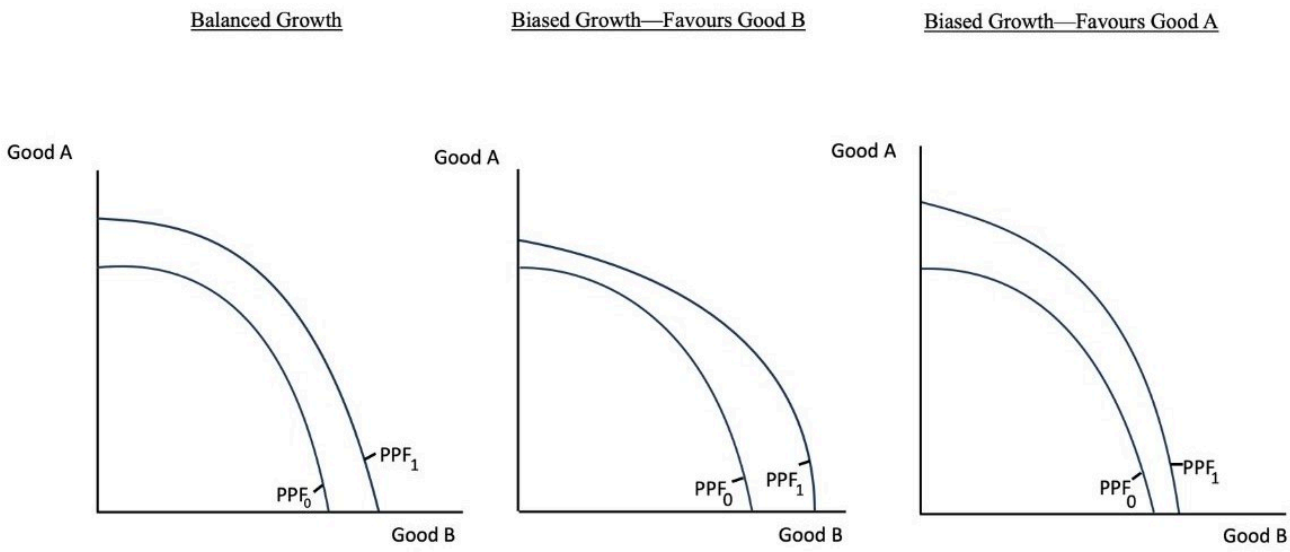

Figure 3.5: Economic Growth Balanced versus Biased. *In the case of balanced growth, the production possibility frontier (PPF) shifts outward proportionately, whereas in the case of biased growth, the PPF is skewed in the direction of one good or the other. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

In the real world, biased growth is typically observed. For instance, many countries experience expansion in available natural resources either due to new discoveries or technological change, which improves the country's ability to exploit particular resources. An example of this is the discovery of new petroleum reserves. To get an

idea as to the implications of such a development on economic growth and production, we will examine the special case of biased growth in which there is an increase in the endowment of only one resource. This case is addressed in the **Rybczynski theorem** (Carbaugh, 2015; Pugel, 2020).

Assuming that only two products are produced in the economy and that relative product prices are constant, a country's endowment of one factor has two effects. It raises the level of output in the sector where that factor is intensively used in production, and it lowers the level of output in the other sector. It is straightforward to see why output will expand in the sector where the factor is used intensively – greater availability of the resource makes a larger output possible. But why does output in the other sector shrink? The expanding sector not only uses the factor whose endowment has increased but also uses the other factor which did not grow. Since this other factor must be bid away from the other sector, the level of output in this sector falls. The results of the Rybczynski theorem highlight the potential for the exploitation of a new resource to restrain production in other sectors. **Figure 3.6** depicts the Rybczynski theorem, whereby an increase in only one factor of production causes biased economic growth in which one sector expands at the expense of the other, assuming relative prices remain unchanged.

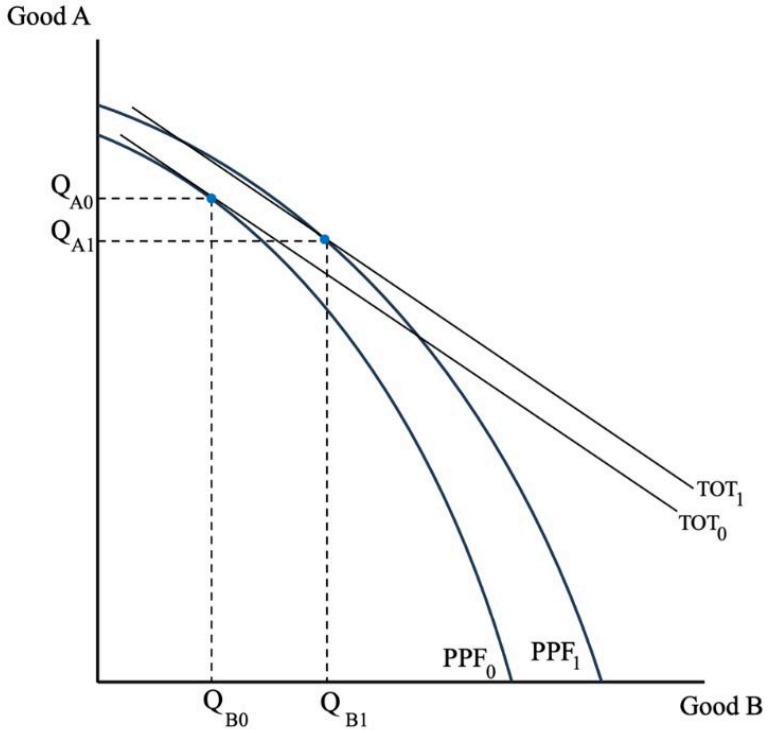

Figure 3.6: Illustration of the Rybczynski Theorem – Growth in a Single Factor. *An increase in only one factor of production leads to biased economic growth in which one sector expands at the expense of the other, assuming that relative prices remain the same. The production of Good B increases while the production of Good A declines. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Economic growth also has implications for a country's ability to trade. As we have seen, growth means that a

country can produce more products and services. In addition, by raising the level of income, growth also enables a country to expand its consumption. As production and consumption change, a country's ability to engage in international trade can change with growth, even without any change in relative product prices. Whether a country is able to trade more depends on the extent to which production and consumption change in response to economic growth.

Assuming **normal goods** (i.e., goods whose purchases increase with income), we can analyze a country's ability to trade by examining the relative changes in the size of the trade triangles, which show how much a country wants to export and import. If consumption were to increase by less than production, the quantity available for export will rise. This would lead to an increase in the size of the country's trade triangle. If consumption were to increase by more than production, the quantity available for export will decrease, and the size of the trade triangle would be smaller. The change in consumption depends on the nature of consumer preferences, depicted by the community indifference curves (See **Chapter 2**). If growth is sufficiently biased in favour of the good that is initially imported, a potential drop in production in the other sector (i.e., the export sector initially) could lead to a reversal of the country's pattern of trade. This suggests that comparative advantage can change over time.

So far, we have assumed that relative product prices have remained the same even though growth has occurred. However, economic growth can cause relative product prices (i.e., the terms of trade) to change. Changes in a country's ability to trade can alter its terms of trade if the country is large enough for its trade volumes to affect international equilibrium product prices. To the extent that international product prices change due to trade, this affects the benefits that a country derives from economic growth. Growth can only affect international product prices if the country is able to exercise market power as a result of the volume of its exports or imports.

If economic growth results in a reduction in the price of the imported product because growth is biased toward the expansion of production in the import-competing sector, the country will benefit in two ways:

- production will increase as the production possibilities frontier shifts outward, and
- the terms of trade improve as the country now receives a higher price for its exports relative to its imports.

Overall, the country would be better off than it would be if relative product prices remained unchanged because it would be able to attain a higher consumption level. In addition to the gain from greater production, the country would benefit from higher relative prices. In this case, the terms of trade improvement will augment the production gain and raise the overall benefit from economic growth. **Figure 3.7** shows how economic growth biased towards the import-competing sector can lead to changes in a country's willingness to trade as well as in its international terms of trade.

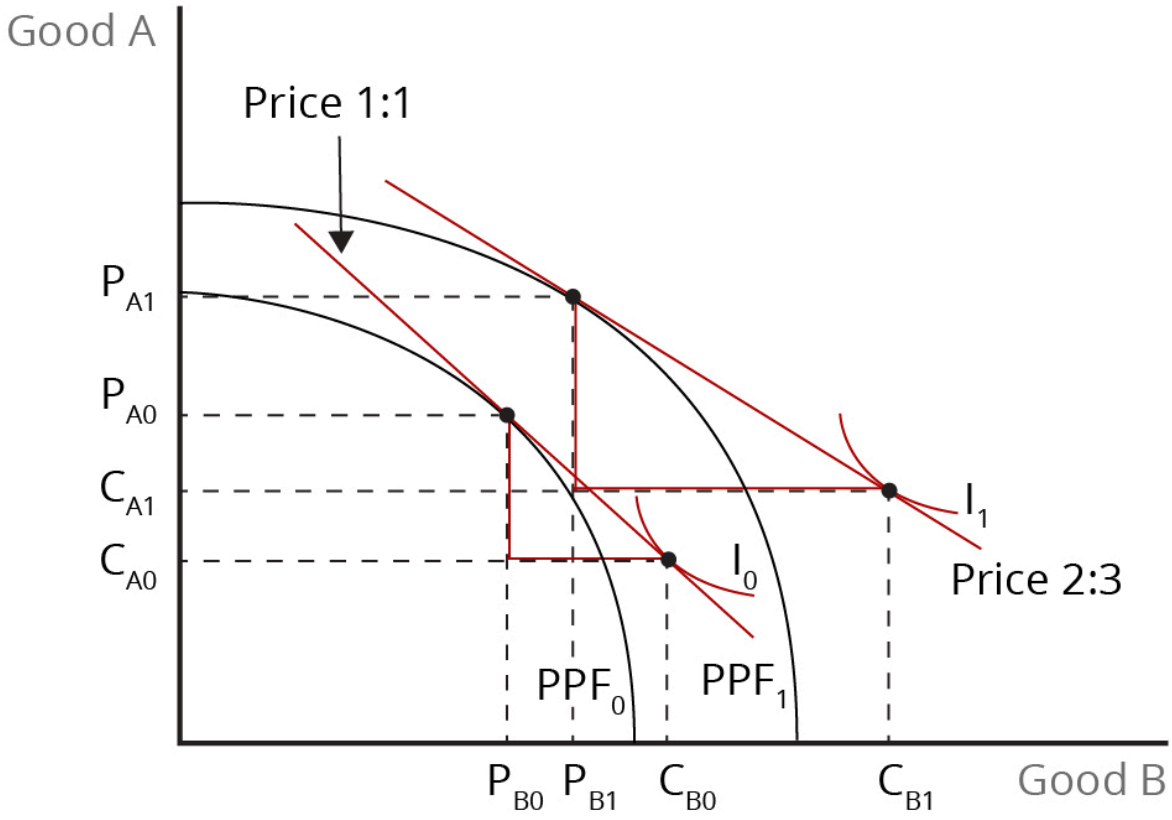

Figure 3.7: Growth Factoring Production in the Import Sector in a Large Country. *An increase in a country's production of the import-competing good, in addition to causing economic growth, lowers the relative price of imports and improves the country's terms of trade. The improvement of the terms of trade is reflected by the flattening of the international price line as the price ratio falls to 2:3 from 1:1. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

It is, however, possible that growth can lead to a deterioration in the country's terms of trade if it prompts an increase in import demand. In this case, the overall effect on the country's well-being is not clear. It will depend on the relative strengths of the production effect and the terms of trade effect. The production effect is positive for economic well-being, but the country is negatively affected by the deterioration in the terms of trade. If the negative terms-of-trade effect is not particularly large, the country will experience an overall gain. It is possible, however, for the negative terms of trade effect to be large enough to dwarf the positive production effect.

To see this, let us consider the situation in which a large country experiences a significant increase in production due to a change in technology. This lifts the economy's output with a bias toward exports. Since the country has market power, the increase in production lowers the relative price of the export product. Graphically, the PPF shifts outward, skewed heavily toward the export sector, and the international price line steepens a lot compared with its pre-growth position (see Figure 3.8). As a result, consumption falls considerably due to the large drop in export price. Growth increases trade but prompts such a large decline in its terms of trade that the country's economic well-being falls. This is the case of **immiserizing growth**, which is depicted in **Figure 3.8**.

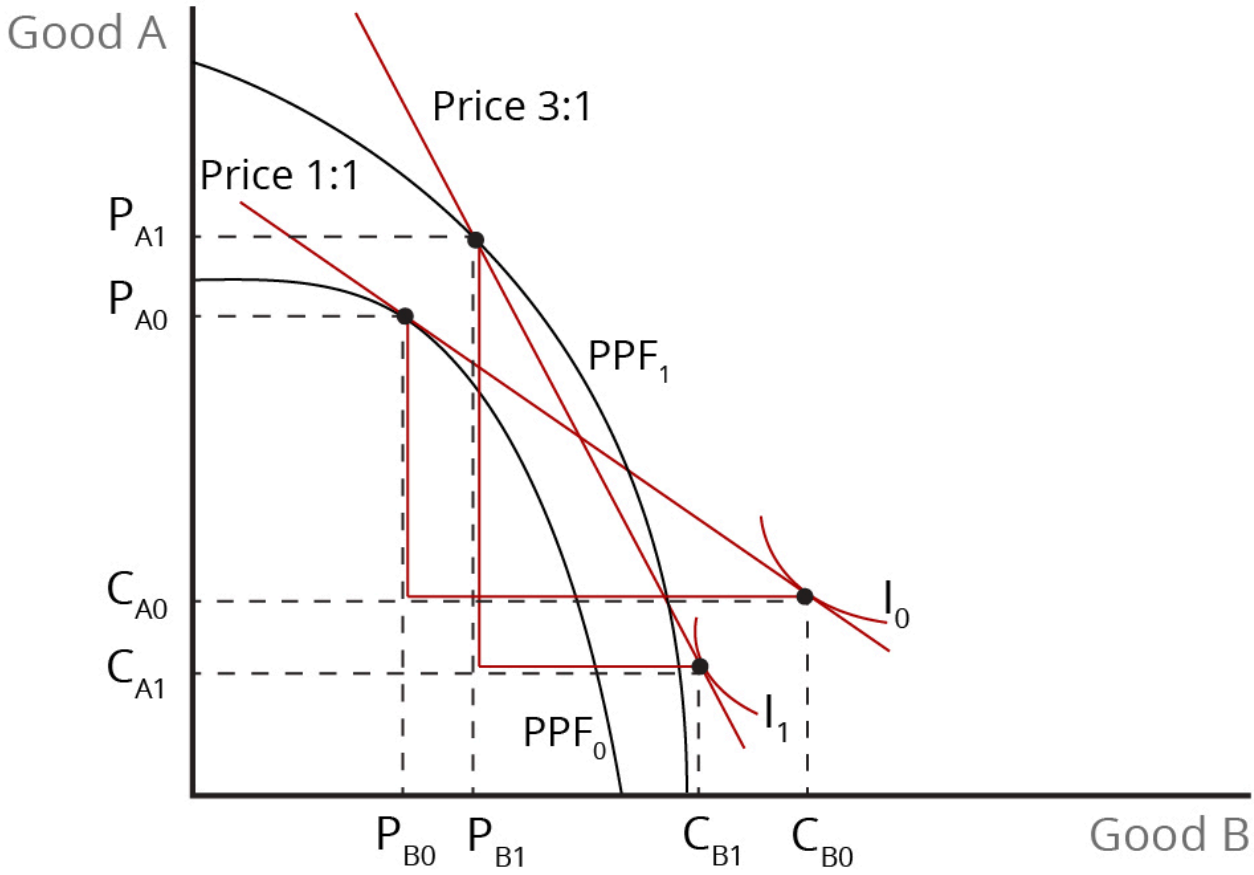

Figure 3.8: An Illustration of the Notion of Immiserizing Growth. *An increase in a country's ability to produce the export good can cause its economic well-being to decline. The outward shift of the production possibilities frontier indicates economic growth. However, because growth is skewed heavily toward export production and the country is large, the price of the export falls substantially and overwhelms the benefit of the increase in production. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

References

Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Image Descriptions

Figure 3.5: Economic Growth Balanced Versus Biased

The image consists of three separate graphs, lined up horizontally, each depicting two production possibility frontiers (PPFs), labelled as PPF_0 and PPF_1, indicating different states of economic growth. Each graph represents a different type of growth.

All graphs have two axes, with the vertical axis labelled "Good A" and the horizontal axis labelled "Good B."

- The first graph, labelled "Balanced Growth," shows two curves that are convex to the origin, with PPF_1 lying outward from PPF0, displaying a proportional shift.
- The second graph, labelled "Biased Growth—Favours Good B," also shows two convex curves, but here PPF_1 has pivoted clockwise slightly from PPF_0, indicating that the growth has favoured "Good B" over "Good A."
- The third graph, labelled "Biased Growth—Favours Good A," similarly portrays two convex curves, but with PPF_1 pivoted counter-clockwise from PPF_0, suggesting that the growth has favoured "Good A" more than "Good B."

[back]

Figure 3.6: Illustration of the Rybczynski Theorem – Growth in a Single Factor

The image is a graph that has a vertical axis labelled "Good A" and a horizontal axis labelled "Good B." The graph features two convex curves representing production possibility frontiers (PPFs), which intersect with two download sloping lines representing terms of trade (TOT). The lower frontier is labelled PPF_0, and the higher is labelled PPF_0. The terms of trade lines are labelled TOT_0 and TOT_1. Dashed lines project from the PPF_0 and TOT_0 point of intersection and the PPF_1 and TOT_1 point of intersection to both axes, at "Q_{A0}" to "Q_{A1}" on the "Good A" axis and "Q_{B0}" to "Q_{B1}" on the "Good B" axis.

[back]

Figure 3.7: Growth Factoring Production in the Import Sector in a Large Country

The image is a graph with a vertical axis labelled "Good A" and a horizontal axis labelled "Good B."

Two convex curved lines, labelled PPF_0 and PPF_1, begin two-thirds up the y-axis, and slope downward from left to right, ending in the middle of the x-axis. The PPF_1 line lies entirely above and to the right of the PPF_0 line. Four dotted horizontal lines extend from the y-axis at points P_{A1}, P_{A0}, C_{A1}, and C_{A0}, from the top down. These intersect with four dotted vertical lines extending from the x-axis, from right to left, at points P_{B0}, P_{B1}, C_{B0}, and C_{B1}.

Two points on each PPF curve are connected with red lines along the existing dotted lines at right angles. Red lines tangent to the PPFs connect through two dotted intersection points labelled Price 1:1 on PPF_0 and Price 2:3 on PPF_1. The two outer intersection points (at C_{A0} and C_{B0} and at C_{A1} and C_{B1}) also have short concave lines labelled I_0 and I_1.

[back]

Figure 3.8: An Illustration of the Notion of Immiserizing Growth

The image is a graph with a vertical axis labelled “Good A” and a horizontal axis labelled “Good B.”

Two convex curved lines, labelled PPF_0 and PPF_1, begin high on the y-axis and slope downward from left to right to the middle of the x-axis. The PPF_1 line lies entirely above and to the right of the PPF_0 line. Four dotted horizontal lines extend from the y-axis at points P_{A1}, P_{A0}, C_{A0}, and C_{A1}, from the top down. These intersect with four dotted vertical lines extending from the x-axis, from right to left, at points P_{B0}, P_{B1}, C_{B0}, and C_{B1}.

Two points on each PPF curve are connected with red lines along the existing dotted lines at right angles. Red lines tangent to the PPFs connect through two dotted intersection points labelled Price 1:1 on PPF_0 and Price 3:1 on PPF_1. The two outer intersection points (at C_{A1} and C_{B1} and at C_{A0} and C_{B0}) also have short concave lines labelled I_1 and I_0. The x-axis (Good B) extends beyond the graphs’ lines and points.

[back]

Chapter 3 Summary

LO 3.1 Heckscher-Ohlin's Theory of Trade and Its Implications

- The H-O theory asserts that comparative advantage comes from differences in resource endowments and in the intensity of resource use in production.
- A country should export products that intensively use its abundant resource and import those products that intensively use resources that are scarce domestically.
- The H-O theory indicates that gains and losses from trade depend on resource ownership. Owners of the resource used intensively in the expanding sector gain well-being from trade, while owners of the resource used heavily in the contracting sector lose.
- The H-O theory also suggests that free trade should cause the prices of individual resources to equalize across countries.
- International trade patterns are significantly consistent with the main prediction of the H-O theory – countries tend to export products that use their abundant resources intensively.

LO 3.2 Shortcomings of the Standard Trade Model as an Explanation for Intra-Industry Trade

- The standard theory of international trade suggests that countries should export one type of product and import a very different type of product – trade should be inter-industry. Indeed, much actual trade is inter-industry.
- However, standard trade theory does not adequately explain intra-industry trade – two-way trade in similar products – among countries whose resource endowments are similar.
- The limitations of the standard theory of trade stem from the assumptions on which it is based, in particular, that of perfect competition.
- To provide better explanations of intra-industry trade, we highlight models that incorporate imperfect competition and some of its features, such as product differentiation and economies of scale.

LO 3.3 Discuss Alternative Theories of International Trade

- We examined three alternative theories of trade – respectively, based on monopolistic competition and product differentiation, global oligopoly, and industries benefiting from external economies of scale.
- The monopolistic competition model suggests that intra-industry trade can be significant because consumers in each trading country demand unique foreign-made versions of the product.
- With intra-industry trade, there is little effect on the distribution of incomes – evident in the H-O model – because inter-sectoral shifts are limited. Exports offset domestic market share losses arising from imports of similar products.
- In a global oligopoly, the countries that happen to get production facilities become exporters while other countries become importers. The pattern of trade that results is arbitrary.

- The distribution of the gains from trade depends on whether the oligopolistic firms choose to collude or to compete. If they compete, potential economic surplus switches from producers to consumers and importing countries.
- In the case of an industry that benefits from external economies of scale, international trade lowers average costs and prices and increases consumer surplus in importing and exporting countries. This result differs from the standard theory whereby consumers in importing countries benefit while those in exporting countries lose.

LO 3.4 Effects of Technological Change on Production Location and International Trade

- Differences in the rates of technological progress among countries can cause changes in comparative advantage. The idea of shifting comparative advantage as a result of technological change is reflected in the product life cycle theory.
- According to the life cycle theory, there is a predictable cycle in which the home country exports a new product, then loses its comparative advantage to other countries as the technology becomes standardized, and eventually becomes an importer.
- The life cycle theory suggests that the location of production can change in line shifts in comparative advantage. Though it is dynamic in nature, the life cycle theory is largely consistent with its static H-O counterpart.

LO 3.5 Implications of Economic Growth for the Volume of Trade and the Terms of Trade

- Economic growth is an increase in a country's production capabilities caused by increases in a country's resource endowments, technological improvements, or some combination of these two factors.
- If economic growth is due to an expansion of a single sector due to a significant increase in a key resource or sector-specific technological change, such expansion can come at the expense of production in the other sector, as suggested by the Rybczynski Theorem.
- Economic growth can also increase a country's willingness and ability to trade. Whether a country can trade more depends on the extent to which production and consumption change in response to growth.
- Economic growth can also alter a country's terms of trade. If growth is concentrated in the import sector, an improvement in the terms of trade increases the country's economic well-being. If growth is concentrated in the export sector and the country can affect the export price, increased exports can cause the terms of trade and national well-being to decline.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it

online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=172#h5p-3

References and Attributions

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Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
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CHAPTER 4: TARIFFS

Chapter 4 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Discuss the meaning, importance, and types of import tariffs.
2. Describe the economic effects of a tariff in a small importing country.
3. Describe the economic effects of a tariff in a large importing country.
4. Explain the terms of trade effect and a nationally optimal tariff.

Think About It!

Video: Tariffs

Before reading this chapter, watch these videos outlining the basics of how tariffs affect the economy.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=184#oembed-1

Source: Khan Academy. (2018, December 7). *Trade and tariffs | AP Microeconomics | Khan Academy* [Video]. YouTube. https://www.youtube.com/watch?v=3pSysspeCxY

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=184#oembed-2

Source: Free Econ Help. (2018, June 26). *How do tariffs affect the economy?* [Video]. YouTube. https://www.youtube.com/watch?v=ohq1LwXybVI

Reflection Questions

Before getting into the discussion, we encourage you to reflect on the following questions:

1. How does an import tariff affect the price of the imported good on the domestic market?
2. What impact do you think the import tariff will have on domestic producers of the import good?
3. What impact do you think the import tariff will have on domestic consumers?
4. Does the import tariff benefit the nation that imposes it? If not, why do you think nations impose import tariffs?

Introduction

In this chapter, we will see that an import tariff affects the economic well-being of a nation as well as the economic well-being of different groups within the economy. It can also affect the economic well-being of the world. We will evaluate which groups gain and which groups lose from an import tariff, as well as consider its effect on a small country, a large country, and the world.

4.1 The Meaning, Importance, and Types of Tariff

What Is a Tariff?

A **tariff** is a tax charged on a product that is either imported or exported. Export tariffs are used considerably less than import tariffs and are mostly imposed by developing countries as a means of generating government revenue. For instance, exports of key primary agricultural and other commodities from developing countries have been taxed to raise revenue or to improve the terms of trade. Import tariffs have been much more prominent and, therefore, our discussion in this chapter will focus on the economic effects of import tariffs.

An import tariff is a tax that is imposed on an imported product and is collected by customs officials before the shipment is allowed into the country. As with an export tariff, an import tariff can be used to raise government revenue. However, an import tariff is perhaps most often used to protect domestic producers from import competition. We can, therefore, distinguish a revenue tariff from a protective tariff. A **revenue tariff** aims to generate revenue and may be applied to either exports or imports. A **protective tariff** aims to reduce the quantity of imports into a country and protects import-competing domestic producers from foreign competition. At present, developing countries rely considerably more on tariffs for revenue than developed countries, as shown in **Table 4.1**.

Table 4.1 Taxes on Trade as Percentage of Government Revenues, Selected Countries
Source: Created from data obtained from the World Bank Development Indicators Database.

Country	2011	2015	2020
Australia	1.8	2.7	3.8
Canada	1.3	1.5	0.9
United States	1.2	1.1	1.8
Bahamas	36.5	28.3	19.4
Bangladesh	24.6	23.7	8.6
China	4.7	2.4	1.8
Ethiopia	29.7	18.8	17.8
Trinidad and Tobago	4.6	4.9	n/a
World	4.4	4.6	3.3

Types of Import Tariffs

There are different types of import tariffs. We distinguish three types of tariffs – specific, ad valorem, and compound. A **specific tariff** is stated in terms of a fixed amount of money per unit of the imported product (e.g., $5 per bottle of wine). An **ad valorem tariff** is stated as a fixed percent of the value of the imported product (e.g., 5% of a $500 watch). Last, a **compound tariff** is a combination of specific and ad valorem tariffs.

A specific tariff is easy to administer, particularly for standardized products – for every unit of the product

entering the country, the specified level of tariff is charged. One implication of this type of tariff is that the amount of protection for domestic producers varies inversely with changes in the price of the imported product. As the import price rises, the degree of protection provided to domestic producers falls in relative terms. In contrast, a specific tariff provides greater protection during a global recession when the prices of imported products usually weaken.

An ad valorem tariff is more appropriate for manufactured products for which there can be many different versions. As a percent of the value of a product, an ad valorem tariff takes account of the differences in product varieties as reflected in the prices of the imported product. In addition, in contrast to specific tariffs, ad valorem tariffs provide steady protection to domestic producers in the face of changing prices. However, a major drawback with using ad valorem tariffs is that determining the value of the imported product can be difficult because customs appraisers may disagree on value, the price may change frequently, and the basis for valuation (i.e., whether or not to include transportation and insurance) may vary. (See summary in **Table 4.2**.)

Table 4.2 Types of Tariffs and the Degree of Protection Against Imports

Types of tariffs	Description	Degree of protection
Specific	A given amount of money per unit of the imported product	Protection varies inversely with changes in price of the imported product. An increase in the product's price reduces protection, whereas a price decrease raises it.
Ad valorem	A given percentage of the value of the imported product	Relative protection is constant – does not change with changes in price of the imported product.
Compound	A combination of specific and ad valorem tariffs	Protection granted to inputs into the final product is offset by the specific part of the tariff, while the ad valorem part provides constant relative protection to the final product.

Compound tariffs are often used in the case of manufactured products which contain inputs that are also subject to import tariffs. The *specific part* of the tariff is intended to offset the cost disadvantage faced by domestic producers that might result from tariff protection provided to domestic suppliers of inputs and the *ad valorem part* of the tariff provides protection to the finished product itself. The specific part of the tariff, in effect, serves to compensate domestic producers for the higher production costs that they face due to the tariff on imported inputs. **Table 4.3** shows the weighted average import tariff rates for selected countries in 2015, indicating relatively low tariffs in advanced countries (e.g., Canada, Germany, the United States).

Table 4.3 Weighted Average Import Tariff Rates, Selected Countries, Percent Source: Created from data obtained from the World Bank Development Indicators Database.

Country	Tariff rate, 2015
Bahamas	18.7
Brazil	8.3
China	4.5
United States	1.7
United Kingdom	2.4
Japan	2.3
Germany	2.0
Canada	1.7
World	3.1

Effective Rate of Protection

The actual rate of protection that domestic producers receive may be different from the **nominal tariff rate** on the imported product. So far, we have assumed that a product that is granted import protection is produced fully within the country using only domestic inputs. For instance, a Canadian product is made entirely with Canadian labour and other inputs. However, when some inputs used in making the final product are imported, the degree of protection provided to domestic producers is influenced not only by the nominal tariff rate on the final product but also on any nominal tariffs on imported inputs needed to produce it. Therefore, the nominal tariff on the imported product may differ from the effective tariff rate.

The **effective tariff rate** considers not only the nominal tariff rate on the imported product but also any tariff imposed on the imported inputs that are used in producing the final good. A nominal tariff on the final product will provide greater protection from imports if the tariff on the imported inputs is relatively low. Since a tariff on imported inputs is a tax on domestic producers of the final product, it increases their cost of production. Therefore, the higher the tariff on imported inputs, the greater the increase in domestic production costs and the lower the effective rate of protection for any given nominal tariff on the final product. National governments typically allow inputs to enter the country either duty-free or at lower rates than those on finished products in order to provide significant protection to their domestic producers.

The effective tariff rate measures the percentage increase in domestic production activities (i.e., value-added) per unit of output that is facilitated by nominal tariffs on both the final product and imported inputs (Carbaugh, 2015). We can calculate the effective tariff rate as follows:

$$[(v' - v)/v] * 100$$

where v is a unit value added before the tariff on imported inputs is applied, and v' is a unit value added after the tariff on imported inputs is applied (Pugel, 2020).

An example of the calculation of the effective tariff rate is shown in **Table 4.4**.

Table 4.4 Effective Tariff Rate: A Calculation Example

Note: v is value-added before the tariff; v' is value-added after the tariff.

Variable	Free trade	Trade with tariffs – 5% on final product; 2.5% on inputs
Product price	450	472.50
Value added (v)	90	103.50
Input cost	360	369.00
Effective tariff rate $[(v' - v)/v] * 100]$	n/a	15%

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning, 2015.

Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill, 2020.

4.2 The Economic Effects of an Import Tariff – The Small-Country Case

One of the key ideas that we have seen with regard to international trade is that it affects different groups in the society differently. Therefore, in our analysis we will identify the effects on domestic consumers and domestic producers. We will measure the economic well-being of these groups using the notion of economic surplus – consumer surplus for consumers and producer surplus for producers, respectively.

Consumer surplus is equal to the difference between what consumers are willing to pay (i.e., the value they put on the product) and what they actually pay for a product (i.e., the market price). Graphically, consumer surplus is equal to the area below the demand curve – which reflects the highest price that consumers are willing to pay for particular amounts of the product – and the equilibrium price in a competitive market. A fall in the market price increases consumer surplus and an increase in price reduces it. (See **Figure 1.5: Consumer Surplus** in Chapter 1.)

In a similar way, producer surplus is equal to the difference between the minimum price that producers are willing to accept (i.e., the marginal cost of producing particular amounts of the product) and the price they actually receive. Graphically, producer surplus is the area above the supply curve and below the equilibrium price. An increase in the market price raises producer surplus, while a fall in the market price reduces it. (See **Figure 1.8: Producer Surplus** in Chapter 1.)

We are now ready to examine the effects of an import tariff on consumers, producers, and the nation. We will see that the effects of a tariff are different for a small nation, which has no influence over the world price, from those of a large nation, which is able to influence the world price for the product as a result of its buying power. We will begin by considering the case of a small country.

A **small country** imports a small proportion of the world supply of the product and is, therefore, unable to influence the world price for the product. As a price-taker, the world price for the imported product is constant from the standpoint of the importing country. In reality, many countries have little or no influence over world product prices. Graphically, we represent the constant world price using a horizontal line in the demand and supply model.

Figure 4.1 represents the domestic market for a product before trade by the intersection of the domestic supply (S_d) and demand (D_d) curves. We determine equilibrium in the domestic market by the intersection of the demand and supply curves at point E. If the economy is opened to international trade, it can import an unlimited amount of the product at the going world price. That is, the supply of imports is constant at the world price, shown as a horizontal line lying below the domestic equilibrium market price before trade. At the world price, the domestic market equilibrium shifts from Point E to Point F, where the demand curve intersects the world price line, W_p. At this point, the total quantity of the product that is purchased is Q_{D0}, and the quantity supplied by domestic producers is Q_{S0}.

Compared with the situation before trade, domestic consumption increases as a result of the lower world price while domestic production falls. Thus, imports emerge, and the quantity of imports is equal to the difference between Q_{S0} and Q_{D0}. With international trade, consumers are better off since they are able to consume more and pay a lower price. Meanwhile, producers experience a decline in their well-being as they

supply less at the lower world price. The domestic industry is, therefore, hurt by international competition as production and employment fall.

Suppose the national government gives in to political pressure from domestic producers to provide tariff protection to their industry! Since the world price remains unchanged in the case of a small country, the price on the domestic market rises by the full amount of the tariff – it now becomes $W_p + t$, where t is the import tariff. As a result, consumers cut back on purchases of the product to Q_{D1}, as they bear the full burden of the tariff; producers expand their production to Q_{S1} due to the protective effect of the tariff; and the quantity of imports fall from their pre-tariff levels to the difference between Q_{S1} and Q_{D1}. The tariff reduces imports and encourages domestic production. In summary, consumer surplus declines by the sum of areas $a+b+c+d$. Producer surplus rises by area a.

The loss of consumer surplus is more than the gain in producer surplus – consumers have to pay the price mark-up on both domestic production and imports while producers gain the price mark-up only on domestic production. However, some of what consumers lose in economic surplus is transferred to producers – the loss of area a by consumers is redistributed to producers – and therefore is not a loss to the nation. Some of what consumers lose is also transferred to the national government as tariff revenue. As long as the tariff is not high enough to block out all imports, the tariff will generate government revenue equal to the tariff multiplied by quantity of imports, i.e., $(Q_{S1} - Q_{D1}) * t$. While tariff revenue represents a loss to consumers, it is not a loss to the nation as there is a transfer of surplus from consumers to the national government. The tariff revenue is captured by area c in **Figure 4.1**.

If we combine the effects of the tariff on consumers, domestic producers, and the national government, we could determine the net impact of the tariff on the nation (see **Table 4.5**). If we value each dollar of economic gain or loss the same regardless of the group to which it accrues, we could add the gains and losses to consumers, producers, and government to find the overall effect on the nation.

Table 4.5: The Effects of a Tariff on Economic Well-Being in a Small Importing Country

Item	Gain/Loss
Producer surplus gain or loss	$+a$
Consumer surplus gain or loss	$-a-b-c-d$
Government revenue	$+c$
National well-being	$-b-d$

The net national loss of economic well-being in the case of a small country is the sum of areas b and d. Area b is called the **production effect** (or protective effect) of the tariff. This represents the fact that some consumer demand is shifted from less expensive imports to more expensive production by domestic suppliers. It captures the additional cost of switching consumption to less efficient domestic production and represents the cost of supporting domestic producers. It is part of what consumers pay, but since neither producers nor the government get this surplus, it is a **deadweight loss**. Area d is called the **consumption effect** of the tariff. This reflects the loss to consumers stemming from the fall in consumption due to the higher after-tariff price. Area d is a deadweight loss because consumers lose surplus without any other group getting it. These deadweight losses are real costs to the nation.

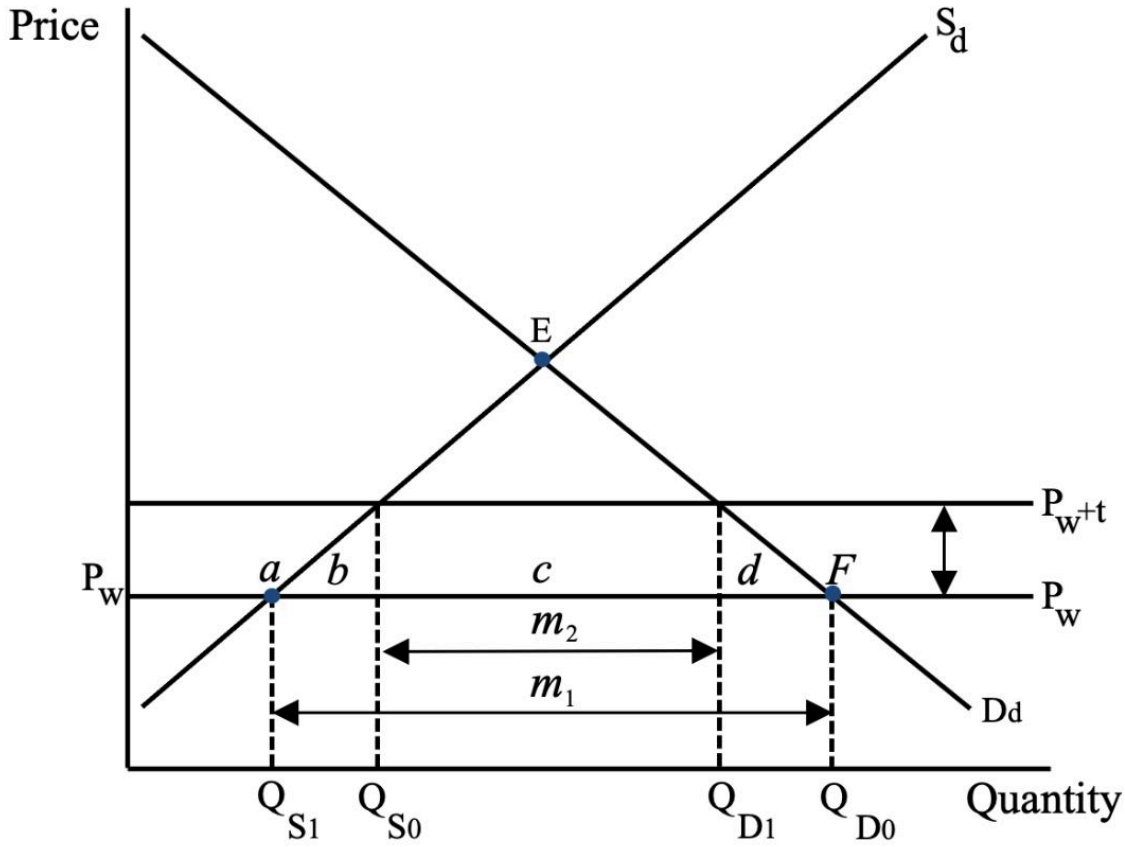

Figure 4.1: The Economic Effects of a Tariff. *[See image description].*
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Image Descriptions

Figure 4.1: The Economic Effects of a Tariff.

The image is a graph with the x-axis labelled "Quantity" and the y-axis labelled "Price." Two intersecting lines form an X in the graph: the downward-sloping line is labelled "D_d," and the upward-sloping line is labelled "S_d." The point where S_d and D_d intersect is marked with the letter "E," signifying the equilibrium. A horizontal line below the equilibrium point is labelled "P_W+t." Below it, another horizontal line is labelled "PW" The intersection of D_d and P_W is labelled F. Four points on the quantity axis are labelled from left to right as "Q_{S1}," "Q_{S0}," "Q_{D1}," and "Q_{D0}." At each intersection of supply, demand, and the world price with and without tariffs are horizontal lines down to the points on the quantity axis.

There is a double-sided horizontal arrow between the two world price lines. A double-sided horizontal arrow

labelled “m1” is between the dotted lines of Q_{S1} and Q_{D0}, and a double-sided horizontal arrow labelled “m2” is between the dotted lines of Q_{S0} and Q_{D1}.

Area a is above the intersection of S_d and P_W and below P_W+t. Area b is the triangle formed by S_d, P_W and QS0. Area c is the rectangle in the middle formed by Q_{S0}, P_W, Q_{D1} and P_W+t. Area d mirrors b, formed by Q_{D1}, P_W, and D_d.

[back]

4.3 The Economic Effects of an Import Tariff – The Large-Country Case

An important question is whether an import tariff can ever benefit a nation economically. We have just seen that if producer surplus and consumer surplus do not have the same value as far as society is concerned, it is possible for a tariff to bring benefits. Another situation in which an import tariff can bring economic benefits is if a **large country** is able to influence the price of the imported product due to its significant market share. While the small-country assumption is very often a valid one, sometimes a nation has a large enough share of the market that its purchases of the imported product can influence its world price. For instance, if the United States imposed a tariff on motor vehicle imports, the resulting reduction in international demand could hurt foreign exporters, who might be willing to lower their export price in an attempt to maintain sales.

An importing country with such buying power could seek to benefit economically by imposing a tariff on imports. If the tariff lowers the prices that exporters receive, then the terms of trade of the importing country improve. In the typical situation, the tariff raises the domestic price somewhat and lowers the export price somewhat. This means that buyers of the import and foreign suppliers share the burden of the tariff. The difference between the price that domestic consumers pay and the price that foreign sellers receive represents the size of the tariff. Because its terms of trade improve, a large importing country can benefit from a tariff.

The analysis of the effects of an import tariff in the large-country case is shown in **Figure 4.2**. The demand for the imported product is given by D_d and the domestic supply is given by S_d. The intersection of supply and demand in the importing country before trade determines the equilibrium price and quantity. When the domestic market opens up to international trade, the importing country faces an international price of P_w. With free trade, equilibrium in the domestic markets shifts. Domestic consumers now purchase Q_{dw} and domestic producers supply Q_{sw}. The difference between the quantity purchased and the quantity supplied domestically represents the initial quantity of imports.

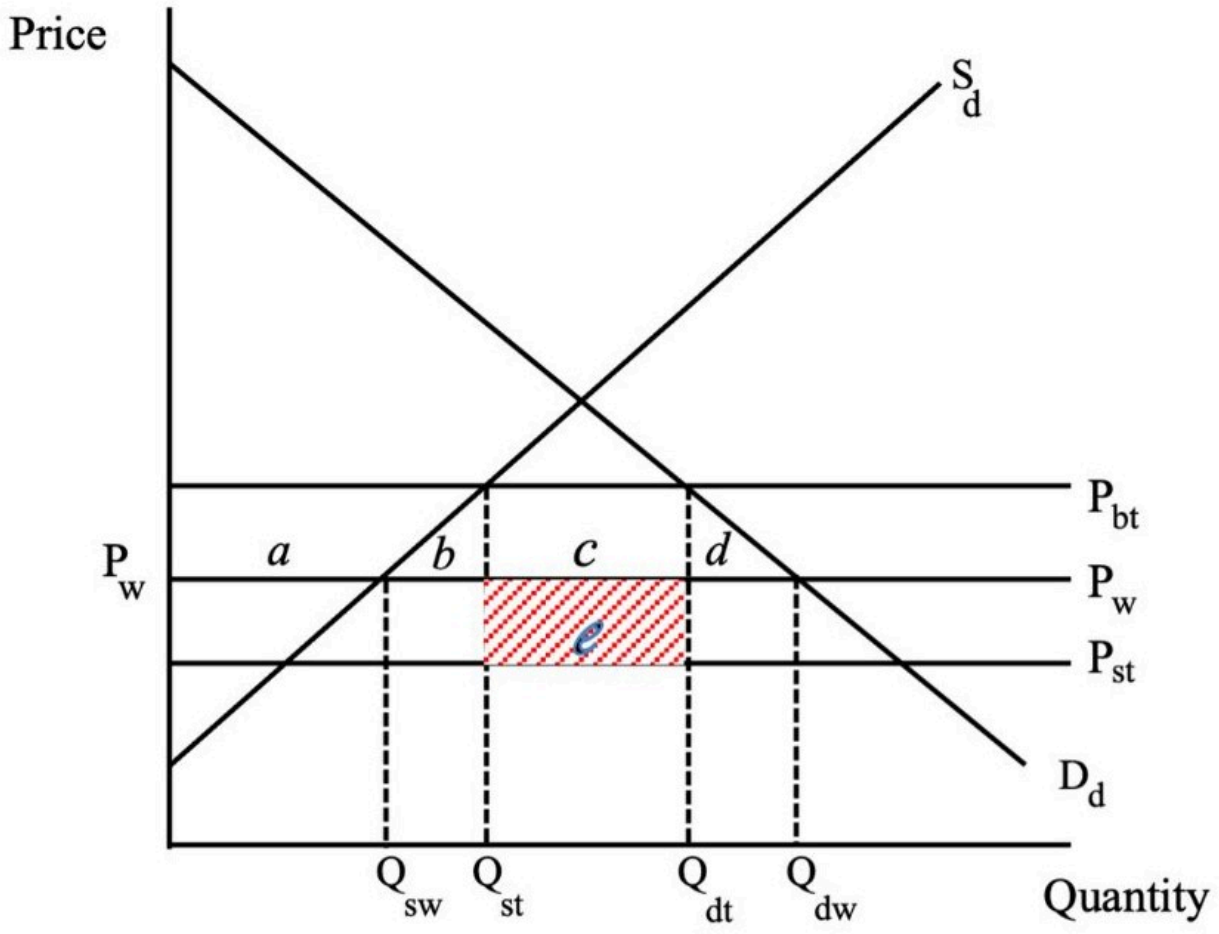

Figure 4.2: The Economic Effects of a Tariff, Large Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Image Descriptions

Figure 4.2: The Economic Effects of a Tariff, Large Country

The image is a graph with a vertical axis labelled "Price" and a horizontal axis labelled "Quantity." A downward-sloping line labelled "S_d" and an upward-sloping line labelled "D_d" insert at the centre. Three horizontal lines representing different price levels: "P_{bt}" is the highest line, followed by "P_W" and "P_{st}" Four points on the quantity axis are labelled from left to right as "Q_{sW}," "Q_{st}," "Q_{dt}," and "Q_{dW}."

Area a is above the intersection of S_d and P_W and below P_{bt}. Area b is the triangle formed by S_d, P_W and Q_{sW}. Area c is the rectangle in the middle formed by Q_{sW}, P_w, Q_{st} and P_{bt}. Area d mirrors b, formed by Q_{dt}, P_W, and D_d. A rectangle below area c and above P_{st} is shaded and labelled e.

[back]

4.4 The Terms-of-Trade Effect and a Nationally Optimal Tariff

Now, suppose the large importing country imposes an import tariff. By increasing the selling cost, the tariff raises the domestic price to P_{bt}. The increase in the domestic price leads to an increase in domestic production from Q_{sw} to Q_{st} and a reduction in domestic consumption from Q_{dw} to Q_{dt}. As a result, the quantity of imports falls to the difference between Q_{dt} and Q_{st}. In the domestic market, consumer surplus falls by the sum of areas a, b, c, and d. Meanwhile, producer surplus increases by area a, as there is a transfer of economic surplus from consumers to domestic producers. The results of our analysis so far are similar to those in the case of a small importing country.

However, because the tariff leads to a reduction in the export price of the product, the price export suppliers receive, P_{st}, lies below the world price, P_w. With the tariff is equal to the vertical difference between the price line P_{bt} and P_{st}, government tariff revenue is equal to the quantity of imports multiplied by the tariff or the sum of area c and area e. Here, we can see that a portion of the tariff revenue is collected from domestic consumers, equal to area c, while the remainder is paid by foreign suppliers of the imported product, area e. This represents the terms-of-trade effect, which is a transfer of economic surplus from the exporting country to the importing country. A large importing country, therefore, can use an import tariff to improve its terms of trade and, consequently, increase its national well-being.

If we combined the effects of the tariff on consumers, domestic producers, and the national government, we can determine what economic impact the tariff has on the nation. The losses in consumer surplus of areas a and c are offset by gains, respectively, to producers and in government revenue. The part of the tariff that foreigners pay, area e, represents a gain for the importing nation. The importing nation suffers the (usual) deadweight losses of area b and area d, the production and consumption effects, respectively. This represents a deterioration in the nation's well-being due to lower consumption and the switch of some

consumption to higher-cost domestic production. Whether the importing country gains or loses in terms of economic well-being depends on the relative sizes of areas b and d and area e. If area e is greater than areas $b + d$, the importing country is better off as a result of the tariff. If e is less than areas $b + d$, the importing country is worse off as a result of the tariff. If the tariff is small, then areas b and d will be relatively small and the country is therefore more likely to gain from a tariff. If the tariff is large, then areas b and d will be large and the country is therefore less likely to gain from a tariff. **Table 4.6** summarizes the economic effects of a tariff for a large country.

Table 4.6 The Effects of a Tariff on Economic Well-Being in a Large Importing Country

ItemGain/Loss	
Producer surplus gain or loss	$+a$
Consumer surplus gain or loss	$-a-b-c-d$
Government revenue	$+c+e$
National well-being	$e-(b+d)$

As seen earlier, a tariff can improve the terms of trade and the economic well-being of a large importing nation. However, the tariff lowers the large country's wellbeing by reducing its consumption of lower-cost imports. Formally, the nation can obtain the highest net gain in economic wellbeing – net benefit – by maximizing the difference between the terms-of-trade effect and the efficiency loss stemming from the production and consumption effects. That is, a **nationally optimal tariff** maximizes the difference between area e and areas $b + d$ in **Figure 4.2**.

The nationally optimal tariff, measured as a fraction of the price received by foreign suppliers, is equal to the reciprocal price elasticity of foreign supply of the imported product. The lower the elasticity of foreign supply, the higher the optimal tariff would be. The lower the elasticity of foreign export supply, the less choice foreign suppliers have in selling their exports and the more the large importing nation can extract surplus from the exporting country with a high tariff. If the supply of foreign exports is infinitely elastic (i.e., if foreign suppliers can readily switch sales to other countries), the tariff would hurt only the importing country, as domestic consumers bear the full burden of the tariff. In this case, the optimal tariff is zero, and free trade would be the best policy for the importing country.

In the large-country case, even though the importing country can benefit as economic surplus is redistributed from foreign suppliers, the nationally optimal tariff will still be bad for the world. This is because foreign suppliers lose more than the surplus transferred to the importing nation. Not only do they receive lower prices, they also experience a drop in their sales as exports are reduced by the tariff. In addition, while our discussion up to this point has assumed that there is no retaliation, the exporting country is likely to retaliate in real-world situations, which would lead to further losses in economic surplus. If many nations apply optimal tariffs, they are likely to experience decreases in economic well-being as the level of world trade falls.

Chapter 4 Summary

LO 4.1 Meaning, Importance, and Types of Tariff

- An import tariff is a tax imposed on an imported product that is collected by customs officials before the shipment is allowed to enter the country.
- There are several types of tariff: a specific tariff represents a fixed amount of money per unit of the imported product; an ad valorem tariff is a fixed percent of the value of the imported product; and a compound tariff is a combination of a specific tariff and ad valorem tariff.
- With a specific tariff, the degree of protection increases with a fall in the price of the import and decreases with a rise in its price.
- An ad valorem tariff keeps the level of protection from imports steady.
- A compound tariff is used when both the final product and input are subject to tariff protection.
- The effective tariff rate often differs from the nominal tariff rate when the import-competing industry uses imported inputs.

LO 4.2 Economic Effects of a Tariff in a Small Importing Country

- A tariff reduces consumer surplus because it raises the domestic price and lowers the quantity consumed – consumers pay a higher price and receive a smaller quantity of the product.
- A tariff increases producer surplus as the increase in price enables domestic producers to boost production – domestic producers produce more and get a higher price.
- The loss of consumer surplus is greater than the increase in producer surplus – while consumers must pay the price mark-up on both imports and domestic production, domestic producers receive the mark-up only on the latter.
- The importing country's government collects tax revenue as a result of the tariff. The tariff revenue represents a transfer of economic surplus from consumers to the government and is, therefore, not a loss of surplus for the importing country.
- The increase in producer surplus also represents a redistribution of surplus from consumers to producers and is, therefore, not a loss of national well-being.
- However, not all of the loss in consumer surplus is transferred to other groups within the nation. Some of what consumers lose – indicated by the production and consumption effects – are deadweight losses.
- The production effect reflects inefficient use of global resources as higher-cost domestic consumption is substituted for lower-cost imports.
- The consumption effect reflects the reduction in purchases of the product by domestic consumers even though they value this additional supply relatively highly.
- As a result of the production effect and the consumption effect, there is an overall loss of economic wellbeing for a small importing nation.

LO 4.3 Economic Effects of a Tariff in a Large Importing Country

- If the importing country is large, meaning that it is able to influence the price for the imported product, a tariff on imports can improve its terms of trade.
- If the improvement of the terms of trade is significant enough, it can more than offset the usual deadweight losses of the production and consumption effects, leading to an overall improvement in national economic well-being.
- While an import tariff might benefit a large country, it is still bad for the world, as foreign exporters lose from not being able to supply a larger quantity even though buyers in the importing country would welcome the additional supplies. Moreover, in the real world, the exporting country is likely to retaliate, which would cause global trade to decline.

LO 4.5 The Terms-of-Trade Effect and a Nationally Optimal Tariff

- The terms-of-trade effect reflects the portion of the tariff revenue collected from foreign producers who reduce their export price in an attempt to maintain sales to the importing country.
- A nationally optimal tariff maximizes the difference between the terms-of-trade effect and the sum of the production and consumption effects.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
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References and Attributions

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CHAPTER 5: TRADE RESTRICTIONS: NON-TARIFF BARRIERS

Chapter 5 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Describe various types of non-tariff barriers: import quotas, voluntary export restraints, and other non-tariff trade barriers.
2. Compare an import tariff with an import quota in terms of their effects on economic well-being, producer and consumer surplus, and government revenue.
3. Explain the terms-of-trade effect of an import quota and the potential for a nationally optimal quota.
4. Compare the effects of an import quota and those of a voluntary export restraint.
5. Describe selected other non-tariff barriers and their economic effects.

Think About It!

Video: Title

Before reading this chapter, watch this video outlining the basic concept of an import quota.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=269#oembed-1

Source: Iris Franz. (2018, September 4). *Import quota*. [Video]. YouTube. https://www.youtube.com/watch?v=xJpqFiCCtaw

Reflection Questions

Before we begin, we encourage you to reflect on the following questions:

1. How does an import quota affect the price of the imported good on the domestic market?
2. What impact do you think the import quota will have on domestic producers of the imported good?
3. What impact do you think the import quota will have on domestic consumers?
4. Does the import quota benefit the nation that imposes it? If not, why do nations impose import quotas?

Introduction

In this chapter, we will see that import quotas and other non-tariff barriers affect the economic well-being of a nation as well as of different groups within the economy. Import quotas and other non-tariff barriers can also affect the economic well-being of the world. We will evaluate which groups benefit and which groups lose from an import quota and examine its effect on a small country, a large country, and the world. We will also consider the impacts on the well-being of other non-tariff barriers.

5.1 Types of Non-Tariff Barriers

As tariffs have come down due to the GATT/WTO negotiations that have sought to promote international trade, countries have increasingly resorted to the use of non-tariff barriers in order to provide protection to their producers. A **non-tariff barrier** is any policy that is aimed at reducing imports other than a simple tariff (Carbaugh, 2015; Pugel, 2020). Non-tariff barriers include **import quotas**, **voluntary export restraints (VERs)**, product standards, **domestic content requirements**, and government procurement policies.

Perhaps the most popular non-tariff barrier is an *(absolute) import quota*, which limits the quantity of imports during a particular period to a level below that which would normally occur under free trade. As countries increasingly liberalized international trade under the General Agreement on Tariffs and Trade (GATT) and later the World Trade Organization (WTO), there was international agreement to phase out absolute import quotas.

Current international trade rules do not permit the use of absolute import quotas for manufactured goods and absolute quotas have been replaced by **tariff rate quotas** in the case of agricultural products. Other non-tariff barriers, such as product standards, domestic content requirements, and government procurement policies, limit imports by increasing costs and creating uncertainty regarding the conditions under which imports occur.

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

5.2 The Economic Effects of an Absolute Import Quota – The Small-Country Case

One idea that we have seen regarding international trade is that it affects different groups in society differently. Therefore, in our analysis of an absolute quota, we will identify the effects on domestic consumers and domestic producers. We will also evaluate the economic impact on the nation and the world. As in the case of an import tariff, we will see that the effects of a quota are different for a small nation, which has no influence over the world price, from those for a large nation, which is able to influence the world price for the product due to its buying power.

The effects of an import quota are largely the same as those of an equivalent tariff (i.e., a tariff that leads to the same level of imports), if the market is competitive. Producers in import-competing industries benefit as they are able to boost production and receive higher prices. Meanwhile, consumers buy a smaller quantity of the product and must pay a higher domestic price. This means that there are the usual deadweight losses which reduce national economic well-being. National economic well-being can be further hurt depending on the way in which licences, which permit legal importation of the quota quantity, are distributed. The government will collect the **tariff-equivalent revenue** if the quota licences are **auctioned** off, and import distributors receive this revenue (or **quota rent**) if the import licences are given to them for free. In these cases, the effects of an import quota are effectively the same as those of a tariff. If the government distributes the licences to domestic suppliers through **resource-using procedures** or to foreign suppliers for free, then some or all of the tariff-equivalent revenue is lost to the country, and the reduction in national economic well-being is greater.

We first consider the case of a small country which is unable to influence the world price of the product. (See **Figure 5.1**)

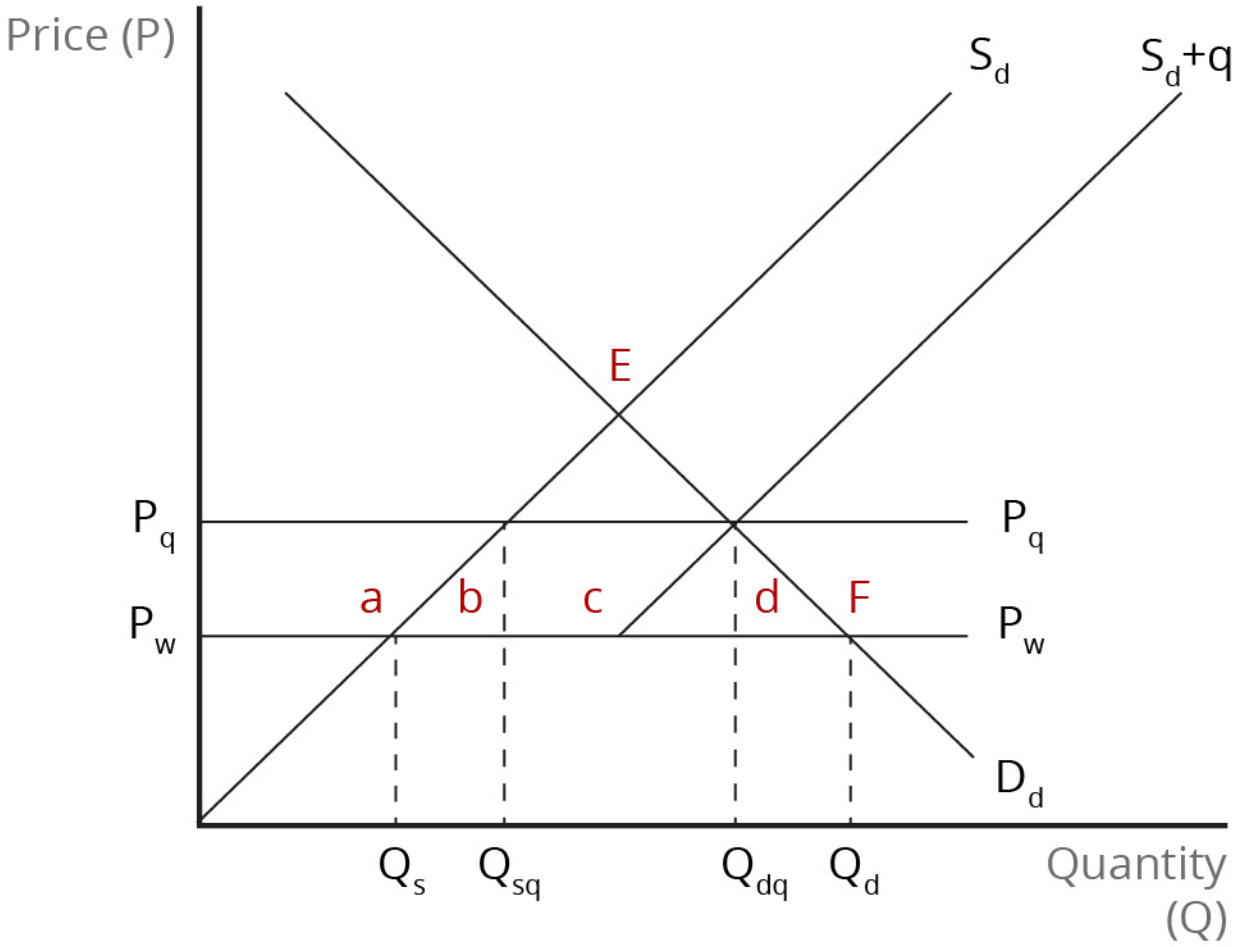

Figure 5.1: The Economic Effects of an Import Quota in a Small Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Figure 5.1 represents the domestic market for the product before international trade by bringing together domestic demand and supply. The domestic market is in equilibrium at the intersection of the demand D_d and supply S_d curves, at point E. If the market is opened to trade, the nation can import an unlimited amount of the product at the prevailing world price. That is, the supply of imports is constant at the world price, shown as a horizontal line lying below the domestic equilibrium market price before trade. At the world price, the domestic market equilibrium shifts from point E to point F, where the demand curve intersects the world price line, P_w. At this point, the total quantity of the product that is purchased is Q_d and the quantity supplied by domestic producers is Q_s.

Compared with the situation before trade, domestic consumption increases as a result of the lower world

price while domestic production falls and a supply deficit emerges. This deficit is met by imports, with the quantity of imports being equal to the difference between Q_s and Q_d. With international trade, the economic well-being of consumers improves since they are able to consume more and pay a lower price. Meanwhile, domestic producers experience a decline in their economic well-being as their production falls due to imports, and the prices they receive are now lower. The domestic import-competing industry is, therefore, hurt by international competition.

Suppose domestic producers lobby the national government to protect their industry, and the government accommodates them with an import quota. This changes the supply situation within the domestic market. Below the world price line, supply comes only from domestic producers; above the world price line, the domestic supply increases by the extent of the quota (i.e., the quota quantity). The pertinent domestic supply curve with international trade now becomes $S_d + q$, where q represents the quota quantity. For the quota to be effective, the level of imports must be set lower than that which would have occurred in the absence of free trade. Since supply is now reduced below the free-trade level, the domestic price rises above the world price and is given by the intersection of the "new" supply curve, $S_d + q$, and the demand curve, D_d. The domestic price is indicated by the horizontal line P_q (parallel to the world price, P_w).

Effects of Import Quotas on Domestic Producers and Consumers

The increase in the domestic price due to the import quota causes consumers to purchase a smaller quantity of the product. The quantity demanded falls from Q_d to Q_{dq}. Consumers are worse off compared with the free-trade situation as they must pay a higher price and get a smaller quantity. Graphically, consumer surplus falls by areas $a+b+c+d$. In contrast, the economic well-being of domestic producers improves as their production expands from Q_s to Q_q and they receive a higher price. As a result, producer surplus increases by area a. The increased domestic production comes at a cost to the nation as it replaces lower-cost production that could have been imported from foreign producers. This is the usual production effect. The consumption effect (area d) also represents a cost to the nation, as some consumers who are willing to pay prices higher than the world price are shut out of (excluded from) the market.

The production effect (area b) and the consumption effect (area d) are the usual deadweight losses that arise from import protection. They represent the lower limit to the social loss from the imposition of an import quota. The social loss can be greater depending on whether the tariff-equivalent revenue accrues in full to the nation. This, in turn, depends on how the licences to import the quota are distributed.

If the government auctions off the licences in a competitive market, competition among importers would drive up the price of a licence to a level where any excess profit is eliminated. Thus, the tariff-equivalent revenue is transferred fully to the government. The tariff-equivalent revenue is captured by area c. The effects of the import quota would, therefore, be the same as those of an import tariff – producer surplus increases, consumer surplus falls, and national economic well-being falls by the sum of the production and consumption effects.

If the government gives out import licences for free to domestic import distributors, they can import the product at the lower world price and sell it (on the domestic market) at the higher domestic price. Thus, domestic import distributors will be able to capture the tariff-equivalent revenue, equal to area c. As this economic surplus remains within the country, this is not a social loss, and the economic effects of the import quota are the same as those of an import tariff – producers' surplus increases, consumer surplus falls, and national economic well-being falls by the sum of the production and consumption effects.

If the government distributes the import licences to domestic suppliers or distributors through resource-using application or selection procedures or to foreign suppliers for free, then some or all of the tariff-equivalent revenue is lost to the country, and the reduction in national economic well-being is greater than the sum of the production effect and the consumption effect. If resource-using procedures are used, then rent-seeking can completely exhaust the tariff-equivalent revenue. Also, if the licences are given to foreign suppliers, then they derive the tariff-equivalent revenue as they are able to sell the imported product at a higher domestic price.

In summary, the economic effects of an import quota are largely the same as those of an equivalent tariff, if the market is competitive. Producers in import-competing industries benefit, while consumers end up being worse off. The nation loses economic well-being due to the production and consumption effects. National economic well-being can be further reduced depending on how the licences, which permit legal importation of the quota, are distributed. If the government gets tariff-equivalent revenue by auctioning off the licences or if import distributors receive this revenue because the licences are given to them for free, the effects of a quota are the same as those of a tariff. If the government distributes the licences to domestic suppliers through resource-using procedures or to foreign suppliers for free, then some or all of the tariff-equivalent revenue will be lost to the country, and the reduction in national economic well-being will be greater.

There is one other way in which the economic effects of an import quota are different from those of an import tariff. A quota provides domestic producers of the import-competing good with more market (monopoly) power than a tariff if demand were to grow for any reason. This is because a quota absolutely limits the quantity of imports in a particular period, which means that when the quota is filled, domestic producers are the only source of supply and, therefore, attain monopoly power. With a tariff, in contrast, imports can continue as long as domestic consumers are willing to pay the higher prices that are prompted by the increase in demand.

The economic effects on an absolute import quota are depicted in **Figure 5.1** and summarized in **Table 5.1**.

Table 5.1 Summary of the Economic Effects of an Import Quota in a Small Country

Item	Gain/Loss
Producer surplus gain or loss	$+a$
Consumer surplus gain or loss	$-a-b-c-d$
Tariff-equivalent revenue	$+c$
National economic well-being	$-b-d$

Review: Effects of Import Quota

Review your understanding of import quotas by watching this video [15:57].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=276#oembed-1

Source: Stephen King. (2014, April 26). *11f: the effects of an import quota.* [Video]. YouTube. https://www.youtube.com/watch?v=sGNvMI0-79M

Image Descriptions

Figure 5.1: The Economic Effects of an Import Quota in a Small Country

The image is a graph with a vertical axis labelled “Price (P),” and a horizontal axis labelled “Quantity (Q).”

Two horizontal lines extending from the lower half of the y-axis are labelled P_q and P_W.

There are two supply curves and one demand curve drawn. The original supply curve, labelled S_d, is upward-sloping from the origin point of the graph. To the right, there is a second supply curve, labelled S_{d+q}, originating from the P_W line.

The demand curve labelled Dd is downward sloping. There is an equilibrium point marked “E” where the original supply curve S_d intersects the demand curve D_d. The intersection of D_d and P_W is labelled “F.”

Four quantity levels are marked along the horizontal axis, Q_s, Q_{sq}, Q_{dq}, and Q_d, with dotted horizontal lines up to the intersections of the price lines and supply curves with the demand curve.

Area a is above the intersection of S_d and P_W and below P_q. Area b is the triangle formed by S_d, P_W and Q_{sq}. Area c is the rectangle in the middle formed by Q_{sq}, P_W, Q_{dq} and P_q, with S_{d+q} passing through it. Area d mirrors b, formed by Q_{dq}, P_W, and D_d.

[back]

5.3 The Terms-of-Trade Effect of an Import Quota – The Large-Country Case

As in the case of tariffs, a key question is whether an import quota can benefit a nation economically. We have concluded that an import quota reduces the economic well-being of a small nation. However, if the importing nation has a large enough share of the world market that it is able to influence the price of the imported product, then an import quota can bring economic benefits as the quota can reduce the quantity of imports and, therefore, the sales of foreign suppliers. The reduction of imports pushes foreign suppliers to reduce their product price in an effort to maintain their sales. With import prices falling – relative to export prices, the importing country experiences an improvement in its terms of trade. That is, there is a **terms-of-trade** effect. If the terms-of-trade effect is large enough to outweigh the negative effects of the usual deadweight losses due to the production and consumption effects, then the large country can gain from an import quota.

The analysis of the effects of an import quota in the large-country case is shown in **Figure 5.2** and **Table 5.2.** The demand for the imported product is given by D_d, and the domestic supply is given by S_d. The intersection of supply and demand in the importing country before trade determines the equilibrium price and quantity at point E. When the domestic market opens up to international trade, the importing country faces an international price of P_w. With free trade, equilibrium in the domestic markets shifts to point F. Domestic consumers now purchase Q_{dw}, and domestic producers supply Q_{sw}. The difference between the quantity purchased and the quantity supplied domestically (i.e., $\mathrm{Q}_{dw} - \mathrm{Q}_{sw}$) represents the initial quantity of imports prior to the imposition of the quota.

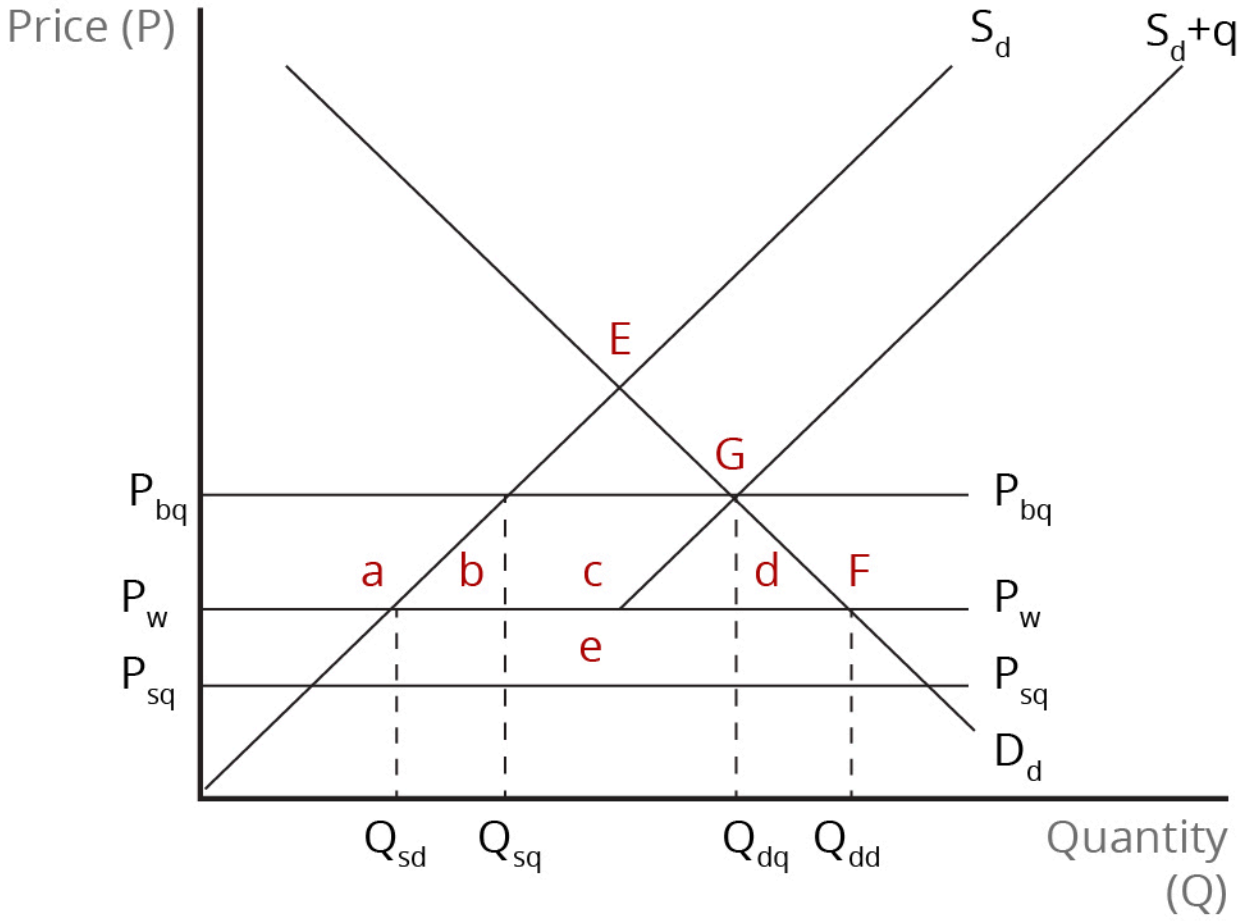

Figure 5.2: The Economic Effects of an Import Quota in a Large Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Now, suppose the large importing nation imposes an import quota. This changes the supply situation within the domestic market. Below the world price line (P_w), supply comes only from domestic producers; above the world price line, the domestic supply (S_d) increases by the extent of the quota (i.e., the quota quantity). The pertinent domestic supply curve with international trade now becomes $\mathrm{S}_d + q$, where q represents the quota quantity. For the quota to be effective, the level of imports must be set below the level which would have occurred in the absence of free trade (i.e., $\mathrm{Q}_{dd} - \mathrm{Q}_{sd}$).

Since supply is now reduced below the free-trade level, the domestic price rises above the world price and is given by the intersection of the "new" supply curve, $\mathrm{S}_d + q$, and the demand curve, D_d. The domestic price (P_{bq}) is indicated by the horizontal line – parallel to and above the world price, P_w. The market equilibrium

now shifts to point G. With the large importing country able to exercise buying power, the price received by foreign suppliers in the import market (P_{sq}) lies parallel to and below the world price.

The increase in the domestic price leads to an increase in domestic production from Q_{sd} to Q_{sq} and a reduction in domestic consumption from Q_{dd} to Q_{dq}. As a result, the quantity of imports falls to the difference between Q_{dq} and Q_{sq}. In the domestic market, consumer surplus falls by the sum of areas a, b, c, and d. Meanwhile, producer surplus increases by area a, as there is a transfer of economic surplus from consumers to domestic producers. The results of our analysis so far are similar to those in the case of a small importing country. Because the quota leads to a reduction in the export price of the product, the price export suppliers receive, P_{sq}, lies below the world price, P_w. With the quota mark-up being equal to the vertical difference between the price lines P_{bq} and P_{sq}, the tariff-equivalent revenue (or quota rent) is equal to the quantity of imports $(Q_{dq} - Q_{sq})$ multiplied by the quota mark-up or the sum of area c and area e. Here, we can see that a portion of the tariff-equivalent revenue, equal to area c, is collected from domestic consumers while the remainder is contributed by foreign suppliers of the imported product, area e. Area e represents the terms-of-trade effect, which is a transfer of economic surplus from suppliers in the exporting country to the importing country. A large importing country, therefore, can use an import quota to improve its terms of trade and, consequently, its national well-being.

If we combine the various economic effects of the import quota on consumers, domestic producers, and other national stakeholders (e.g. import distributors and government), we can determine the overall economic impact of the quota on the nation as a whole.

- The losses in consumer surplus of areas a and c are offset by gains to producers and the part of tariff-equivalent revenue that is obtained from domestic sources.
- The part of the tariff-equivalent revenue that foreigner suppliers pay, area e, represents a gain for the importing nation.
- The importing nation suffers the usual deadweight losses of area b and area d, the production and consumption effects, respectively. This represents a deterioration in the nation's well-being due to

lower consumption and the switch of some consumption to inefficient domestic production.

Whether the importing country gains or loses economic well-being depends on the relative sizes of areas b and d and area e.

- If area e is greater than areas $b + d$, the importing country is better off as a result of the import quota.
- If e is less than areas $b + d$, the importing country is worse off as a result of the import quota.

The lower the price received by foreign suppliers of the import, the larger is area e and the more likely the large nation will gain from the quota. **Table 5.2** summarizes the economic effects of a tariff for a large country.

Table 5.2 Summary of the Economic Effects of an Import Quota in a Large Country

Item	Gain/Loss
Producer surplus gain or loss	$+a$
Consumer surplus gain or loss	$-a-b-c-d$
Tariff-equivalent revenue	$+c+e$
National economic well-being	$e-(b+d)$

As seen, an import quota can improve its terms of trade and the economic well-being of a large importing nation. However, the quota lowers the large country's well-being by reducing its consumption of lower-cost imports. Formally, the nation can obtain the highest net gain in economic well-being – net benefit – by maximizing the difference between the terms-of-trade effect and the efficiency loss stemming from the production and consumption effects. That is, a **nationally optimal quota** maximizes the difference between area e and areas $b + d$ in **Figure 5.2**.

In the large-country case, even though the importing country can obtain benefit as economic surplus is redistributed from foreign suppliers, a nationally optimal quota is still bad for the world. This is because foreign suppliers lose more than the surplus transferred to the importing nation. Not only do foreign suppliers receive lower prices, they also experience a drop in their exports because of the quota. In addition, the exporting country is likely to retaliate in real-world situations, which would lead to further losses in economic surplus. The import quota causes a loss of world economic well-being and hurts the foreign country.

Review: Effects of Import Quota on a Large Country

Review your understanding of import quotas by watching this video [15:57].

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=291#oembed-1

Source: Mike Moore. (2020, July 27). *Import quota large country*. [Video]. YouTube. https://www.youtube.com/watch?v=v_0bB8ckC5k

Image Descriptions

Figure 5.2: The Economic Effects of an Import Quota in a Large Country

The image is a graph with a vertical axis labelled “Price (P),” and a horizontal axis labelled “Quantity (Q).”

Three horizontal lines extending from the lower half of the y-axis are labelled P_{bq}, P_W, and P_{sq}.

There are two supply curves and one demand curve drawn. The original supply curve, labelled S_d, is upward-sloping from the origin point of the graph. To the right, there is a second supply curve, labelled S_{d+q}, originating from the PW line.

The demand curve labelled D_d is downward sloping. There is an equilibrium point marked “E” where the original supply curve S_d intersects the demand curve D_d far above P_{bq}. The intersection of D_d and P_W is labelled “F.” The intersection of S_{d+q}, D_d, and P_{bq} is labelled “G” and falls between E and F on the demand curve.

Four quantity levels are marked along the horizontal axis, Q_{sd}, Q_{sq}, Q_{dq}, and Q_{dd}, with dotted horizontal lines up to the intersections of the price lines and supply curves with the demand curve.

Area a is above the intersection of S_d and P_W and below P_q. Area b is the triangle formed by S_d, P_W and Q_{sq}. Area c is the rectangle in the middle formed by Q_{sq}, P_W, Q_{dq} and P_q, with S_{d+q} passing through it. Area d mirrors b, formed by Q_{sq}, P_W, and D_d. Below the area c, area e is a rectangle formed by Q_{sq}, P_{sq}, Q_{dq}, and P_W.

[back]

5.4 An Import Quota Versus a Voluntary Export Restraint (VER)

A **voluntary export restraint** is not at all voluntary! A VER is a non-tariff trade barrier in which the importing country effectively forces the exporting country to limit the quantity of exports to the importing country. VERs are policies by foreign suppliers, usually in conjunction with their governments and governments in importing countries agree to limit imports into a particular market. As is usual with all types of import protection, a VER is intended to protect domestic producers that are facing stiff import competition. One of the main reasons that importing countries were using VERs to grant import protection was to circumvent the rules of the **World Trade Organization**, which had outlawed absolute import quotas. One of the more well-known VERs is that implemented with regard to exports of motor vehicles from Japan to the United States beginning in 1981 and lasting through 1994 (Pugel, 2020; Carbaugh, 2015). In the 1980s, there was much concern in other advanced countries about import competition from Japan in their domestic market. Indeed, Japan was among the countries most often forced to restrict their exports through VERs.

The graphical analysis of a VER is very similar to that of an absolute import quota, as it is a quantitative restriction on the quantity of imports. The key difference in the case of a VER is that the foreign (exporting) country or, more specifically, the foreign export suppliers, will be administering the VER. In essence, the foreign suppliers will act in concert in supplying the limited quantity. The effects of the VER are shown for a small country in **Figure 5.3**.

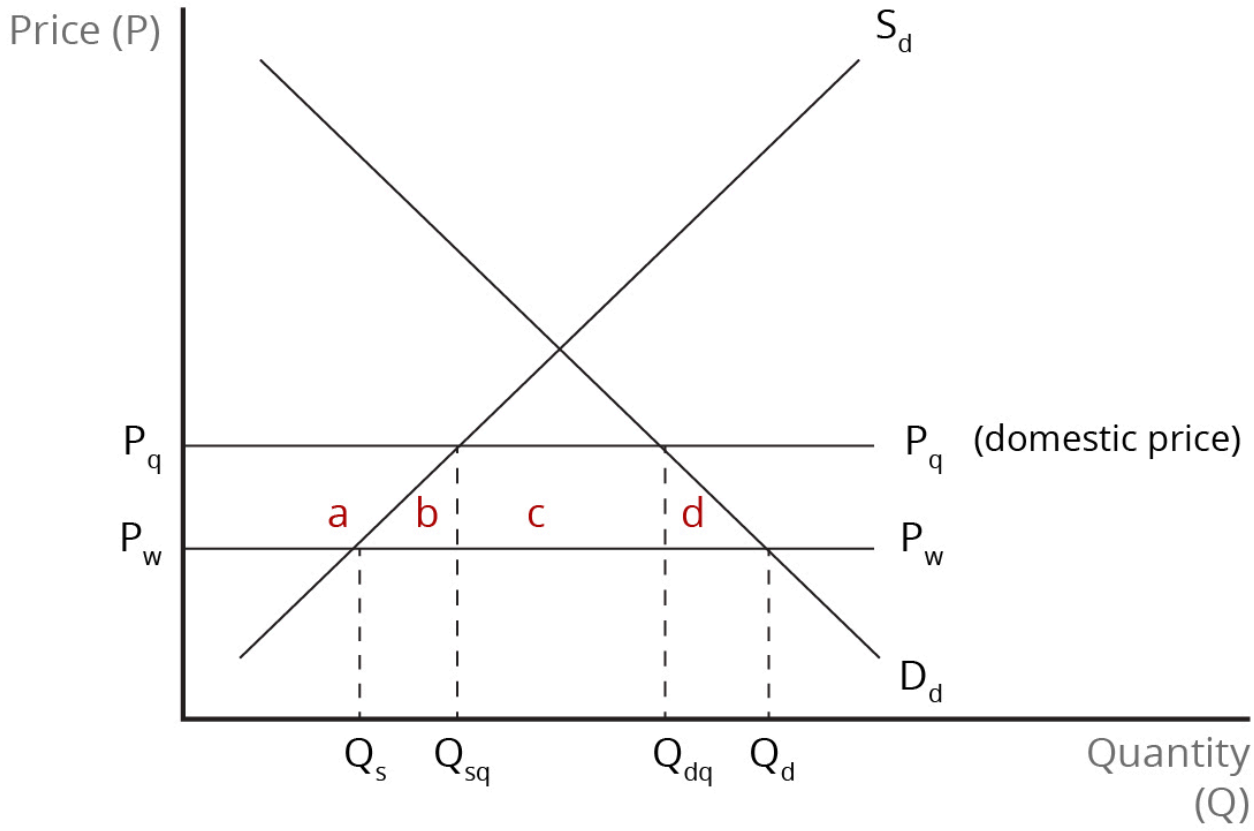

***Figure 5.3: The Economic Effects of a Voluntary Export Restraint (VER)**. [See image description].*
***Credit:** © by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Suppose domestic producers lobby the importing-country government for protection and the government accommodates them with a VER, i.e., by asking the foreign government to have its producers limit supplies to the importing country. This changes the supply situation within the importing country's domestic market. Below the world price line (P_w), supply comes only from domestic producers; above the world price line (P_w), the domestic supply (S) increases by the extent of the quantity allowed under the VER. The pertinent domestic supply curve with international trade now becomes $\mathrm{S}+Q$, where (Q) represents the quantity under the VER. For this quantity restriction to be effective, the level of imports must be set lower than that which would have occurred in the absence of free trade. Since supply is now reduced below the free-trade level, the domestic price rises above the world price and is given by the intersection of the "new" supply curve, $\mathrm{S}+Q$, and the demand curve, D. The domestic price is indicated by the horizontal line, (P_d), parallel to and above the world price, P_w.

Effects of the VER On Domestic Producers and Consumers, the Nation, and

the World

The results are exactly the same as that of an absolute import quota, except for the distribution of the tariff-equivalent revenue (or quota rent). The increase in the domestic price due to the VER causes domestic consumption of the product to fall. The quantity demanded falls from Q_{d0} to Q_{dq}. Consumers are worse off compared with the free-trade situation as they must pay a higher price and get a smaller quantity. Graphically, consumer surplus falls by areas $a+b+c+d$. In contrast, the economic well-being of domestic producers improves as their production expands from Q_{s0} to Q_{sq} and they receive a higher price. As a result, producer surplus increases by area a. The increased domestic production comes at a cost to the nation as it replaces lower-cost production that could have been imported from foreign producers. This is the usual production effect. The consumption effect also represents a cost to the nation, as some consumers who are willing to pay prices higher than the world price are shut out of the market.

The production effect (area b) and the consumption effect (area d) are the usual deadweight losses that arise from import protection. They are equivalent to the lower limit to the social loss from the implementation of an import quota. However, the social loss is greater than that from an import quota if the importing country provides the import licences to import distributors for free or if it auctions off the licences in a competitive market. As we have seen, in either of these two cases, the tariff-equivalent revenue accrues to domestic import distributors or to the national government and is, therefore, not a loss to the nation.

In the case of the VER, the set of foreign suppliers get the tariff-equivalent revenue, area c, as they administer the VER and are able to get the mark-up by selling the product at the higher domestic price. This means that the national loss compared to the situation under free trade, in the case of a VER for a small country, is equal to area b + area c + area d. The loss of area c is a national loss due to the deterioration of the importing country's terms of trade as its import prices relative to its export prices. For the world as a whole, the net social loss in comparison to free trade is the sum of areas b and d. Area c is not a loss to the world as it represents a transfer from the importing country to the exporting country.

Another important practical effect of the VER is that foreign producers may respond to the increased protection due to the VER by establishing production (facilities) within the importing country. Indeed, this was the response of Japanese automakers to the Japan-US auto VER. This represents foreign direct investment and represents a gain to the importing country. The VER may also cause foreign exporters to adjust the composition of their exported products in a way that satisfies the quantity restriction but raises the value of their exports. There is evidence that Japanese automakers exported higher-values vehicle models to the United States after the VER came into effect.

Table 5.3 Summary of the Economic Effects of a Voluntary Export Restraint (VER)

Item	Gain/Loss
Producer surplus gain or loss	$+a$
Consumer surplus gain or loss	$-a-b-c-d$
Tariff-equivalent revenue	$+c$
National economic well-being	$-b-c-d$

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Image Descriptions

Figure 5.3 The Economic Effects of a Voluntary Export Restraint (VER)

The image is a graph with a vertical axis labelled “Price (P),” and a horizontal axis labelled “Quantity (Q).”

Two horizontal lines extending from the lower half of the y-axis are labelled P_q and P_W. The P_q is further labelled (domestic price). There is one supply curve and one demand curve that intersect in the centre of the graph. Four quantity levels are marked along the horizontal axis, Q_s, Q_{sq}, Q_{dq}, and Q_d, with dotted horizontal lines up to the intersections of the price lines and supply and demand curves.

Area a is above the intersection of S_d and P_W and below P_q. Area b is the triangle formed by S_d, P_W and Q_{sq}. Area c is the rectangle in the middle formed by Q_{sq}, PW, Q_{dq} and P_q. Area d mirrors b, formed by Q_{dq}, P_W, and D_d.

[back]

5.5 Other Non-Tariff Barriers

Countries use various other non-tariff barriers to protect domestic producers from import competition. They often employ laws and regulations that have otherwise legitimate purposes as a cover for the provision of protection. For instance, considerations relating to consumer protection, the environment, and labour have been invoked as premises (bases, pretexts) to limit import competition. In what follows, we will focus on three other non-tariff barriers, namely, product standards, domestic content requirements, and government procurement mechanisms.

Product Standards

A range of laws and regulations exist pertaining to the quality of consumer products. Specifically, these are often concerned with improving the well-being of society by addressing the negative outcomes that have consequences for human health and the environment. To the extent that private firms, for instance, can ignore the external costs of environmental degradation and adverse health and safety outcomes, they end up producing too much of certain products from the standpoint of the society. Against this backdrop, import protection can be a remedy for these instances of market failure if they are, in fact, legitimate concerns. If they are instead pretexts for supporting import-competing domestic industries, then domestic producers, domestic consumers, the importing nation, and the world experience the usual economic effects of import protection.

Producers benefit from being able to expand higher-cost domestic production at the expense of lower-cost foreign supplies. Meanwhile, domestic consumers are hurt as they must pay a higher price and purchase a smaller quantity of the product. The importing nation, as a whole, experiences a decline in economic well-being, stemming from the usual production (protective) and consumption effects. In addition, its government gives up any opportunity to collect revenue and must incur the additional cost of drawing up and implementing the laws and regulations (policies) and monitoring compliance. The overall social cost to the nation may, therefore, be greater than the usual deadweight losses of the production and consumption effects. The world also experiences a loss of economic well-being due to inefficient allocation of resources.

Domestic Content Requirements

Domestic content rules (or requirements), often advocated by organized labour, mandate that products sold in a country must have a specified minimum amount of domestic production value in the form of wages paid to local workers and other inputs produced within the country. The aim is to encourage domestic and foreign producers to use domestic inputs in products sold within the country. Domestic content requirements can provide import protection at the level of the final product as well as at the level of the inputs. Specifically, they can be a barrier to the importation of (i) final products that do not meet the content requirements and (ii) raw material inputs and components that can be used in domestic production of the final product.

With domestic content requirements, the nation experiences the usual results of import protection. The economic well-being of domestic producers improves because of higher prices and production, while consumers are worse off as they must buy a smaller quantity of the product and pay higher prices. The nation as a whole experiences the usual deadweight losses of the production and consumption effects. In addition, domestic content requirements lead to administrative costs and do not generate tariff-equivalent revenue for

the national government. This means that the loss of national economic well-being is likely to be larger than would be the case under equivalent import tariff protection.

Government Procurement Mechanisms

Government procurement policies generally discriminate against foreign products. Many national governments have such procurement policies either explicitly or in some disguised manner. In the United States, procurement policy was enshrined in the Buy America Act, which mandated that U.S. government purchases favour domestic products over foreign ones. Specifically, federal government agencies were required to buy materials and products from U.S. suppliers once prices were not substantially higher than those of foreign suppliers. The restrictions of the Buy America Act have been liberalized with the Tokyo Round of the GATT negotiations in 1979 (Carbaugh, 2015). However, many U.S. states and other jurisdictions (e.g., cities) have "Buy American" or "Buy Local" procurement rules. In the case of many other countries, while explicit laws may not exist, they have similar subtle rules and practices that discriminate against foreign suppliers.

To the extent that a country's government favours domestic suppliers over foreign suppliers, this likely encourages higher-cost domestic production over lower-cost foreign production. Therefore, there are the usual effects on economic well-being for domestic producers, domestic consumers, the county's government, and the world. Domestic producers gain; consumers are hurt; the government forgoes tariff-equivalent revenue; and there is inefficient allocation of resources as higher-cost production substitutes for more efficient production elsewhere.

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Chapter 5 Summary

LO 5.1 Types of Non-Tariff Barriers

- Countries have increasingly resorted to using non-tariff barriers to provide protection to their producers, as average tariff rates have fallen worldwide.
- Non-tariff barriers – import policies other than a simple tariff – include import quotas, voluntary export restraints (VERs), product standards, domestic content requirements, and government procurement policies.
- The most well-known non-tariff barrier is an import quota, which limits the quantity of imports during a particular period to a level below what would normally occur under free trade.
- Non-tariff barriers other than import quotas and voluntary export restraints – product standards, domestic content requirements, and government procurement policies – provide import protection by raising costs and creating uncertainty regarding the conditions under which imports occur.

LO 5.2 Import Tariffs, Import Quotas and Their Affect on Economic Well-Being

- The effects of an import quota are largely the same as those of an equivalent tariff, presuming the market is competitive.
- Producers in import-competing industries benefit from higher prices and production, while consumers end up worse off, having to pay more and consume a smaller quantity.
- The nation loses economic well-being due to the usual production (protective) and consumption effects, but national economic losses can be greater depending on how the import licences are distributed.
- If the government distributes import licences to domestic firms through resource-using procedures or to foreign firms for free, then some or all of the tariff-equivalent revenue will be lost to the nation, and national economic losses will be greater.
- An import quota gives domestic producers greater protection and more market power than an equivalent tariff in the case of growing demand. Whereas a quota represents a strict quantitative limit on imports, imports can continue under a tariff once consumers are willing to pay higher prices.

LO 5.3 The Terms of Trade Effect of an Import Quota

- If an importing country is large enough so that it is able to influence the price for the imported product, then an import quota can improve the nation's terms of trade as foreign suppliers accept lower prices.
- If the improvement of the terms of trade is substantial enough, it can more than offset the usual deadweight losses of the production and consumption effects and lead to an improvement in national economic well-being.
- An optimal import quota maximizes the difference between this terms-of-trade effect and the

efficiency losses due to the production and consumption effects.

- Even though a large importing country can improve its economic well-being due to the terms of trade effect, a nationally optimal quota still reduces world well-being as global resources are misallocated.
- Foreign exporters lose from not being able to supply a larger quantity even though buyers in the importing country would welcome the additional supplies. Moreover, the exporting country is likely to retaliate, prompting a decline in global trade.

LO 5.4 Effects of an Import Quota and a VER

- A VER is a non-tariff trade barrier in which the importing country effectively forces the exporting country (gets the exporting country to agree) to limit the quantity of exports to the importing country.
- As with other types of import protection, a VER is intended to protect domestic producers that are facing stiff import competition.
- The economic effects of a VER are the same as that of an absolute import quota, except for the distribution of the tariff-equivalent revenue (or quota rent).
- Domestic producers experience an improvement in the economic well-being as their production rises and they receive higher prices.
- Domestic consumers end up worse off economically as they must buy less of the product and pay higher prices.
- The country as a whole loses economic well-being due to the usual deadweight losses from the production and consumption effects as well as the transfer of the tariff-equivalent revenue to the exporting country, which administers the VER.
- The world loses economic well-being as higher-cost supplies are lower-cost imports in the importing country and global consumption is reduced.
- Foreign producers may respond to a VER by beginning production in the importing country and by adjusting the composition of their exports so that the quantity restriction is satisfied, but the value of their exports rises.

LO 5.5 Economic Effects of Other Non-Tariff Barriers

- Countries use various other non-tariff barriers to protect domestic producers from import competition. These include product standards, domestic content requirements, and government procurement mechanisms.
- Product standards, domestic content requirements, and government procurement mechanisms all benefit domestic producers, hurt domestic consumers, and reduce national well-being and world well-being.
- The sources of losses in well-being, nationally and worldwide, are the usual production and consumption effects, along with the resource costs associated with administering product standards, domestic content requirements, and government procurement mechanisms.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=332#h5p-5

References and Attributions

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CHAPTER 6: TRADE RESTRICTIONS: ARGUMENTS FOR PROTECTION AND THE COST OF PROTECTION

Chapter 6 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Describe how government can intervene in international trade in instances of market failure.
2. Identify the conditions under which an import tariff can boost domestic production, employment, and economic well-being.
3. Compare production subsidies or similar policies to import tariffs for promoting economic well-being.
4. Describe the conditions that justify promotion of an infant industry with tariff protection.
5. Discuss how and why governments may provide support for industries experiencing decline from import competition.
6. Identify other arguments for supporting domestic industries with import tariffs.
7. Describe how the cost of protection against imports can be estimated.

Think About It!

Video: Free Trade vs. Protectionism

Before reading this chapter, watch this video outlining the basic concept of protectionism.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=360#oembed-1

Source: Professor Dave Explains. (2023, July 26). *Free Trade vs. Protectionism*. [Video]. YouTube. https://www.youtube.com/watch?v=_tmPnH-JkNg

Reflection Questions

Before we begin, we encourage you to reflect on the following questions:

1. What arguments have you heard for national governments providing protection to domestic industries?
2. Can you think of some groups within the nation that tend to benefit disproportionately from protection?
3. Can you think of any arguments for protection that you consider acceptable?

Introduction

In this chapter, we will examine the major arguments that are made in favour of protection. We acknowledge that free trade is generally the best policy if markets are competitive and if gains and losses in economic surplus are valued on the same basis across all sectors of society. However, markets are often not competitive, and policymakers may value the gains and losses experienced by different segments of society differently. For instance, policymakers often put greater weight on economic benefits accruing to domestic producers than those accruing to consumers.

Also, external benefits and external costs and the exercise of market power are common in markets, which causes private benefits and costs to differ from social benefits and costs. To the extent that external benefits are present in domestic production, policymakers, for instance, may choose to protect domestic producers from import competition even if consumers are hurt.

Next, we recognize that even when policymakers choose to support domestic production and workers, it is usually better to use some policy instrument other than trade policy. Therefore, we compare the economic effects of a tariff with those of a production subsidy. Last, we will discuss the cost of protection to an importing country and show how we can estimate it.

6.1 The Case for Government Involvement in Protection Against Imports

While we will recognize that free trade is usually the best policy, there are often good reasons for adopting policies that protect domestic industries. Formally, these reasons are "second best" because they do not lead to the socially efficient or "first-best" outcomes. **"First-best"** outcomes imply that private market actions, taken in self-interest, lead to the best outcomes for society because private and social interest coincide. This situation is depicted graphically in **Figure 6.1**. However, private actions often do not amount to the social interest – that is, the world is not ideal. As a result, we will explore some important second-best arguments for import protection. Moreover, we will highlight that, when faced with having to support domestic industries with second-best policies, governments can often do better than resort to import barriers.

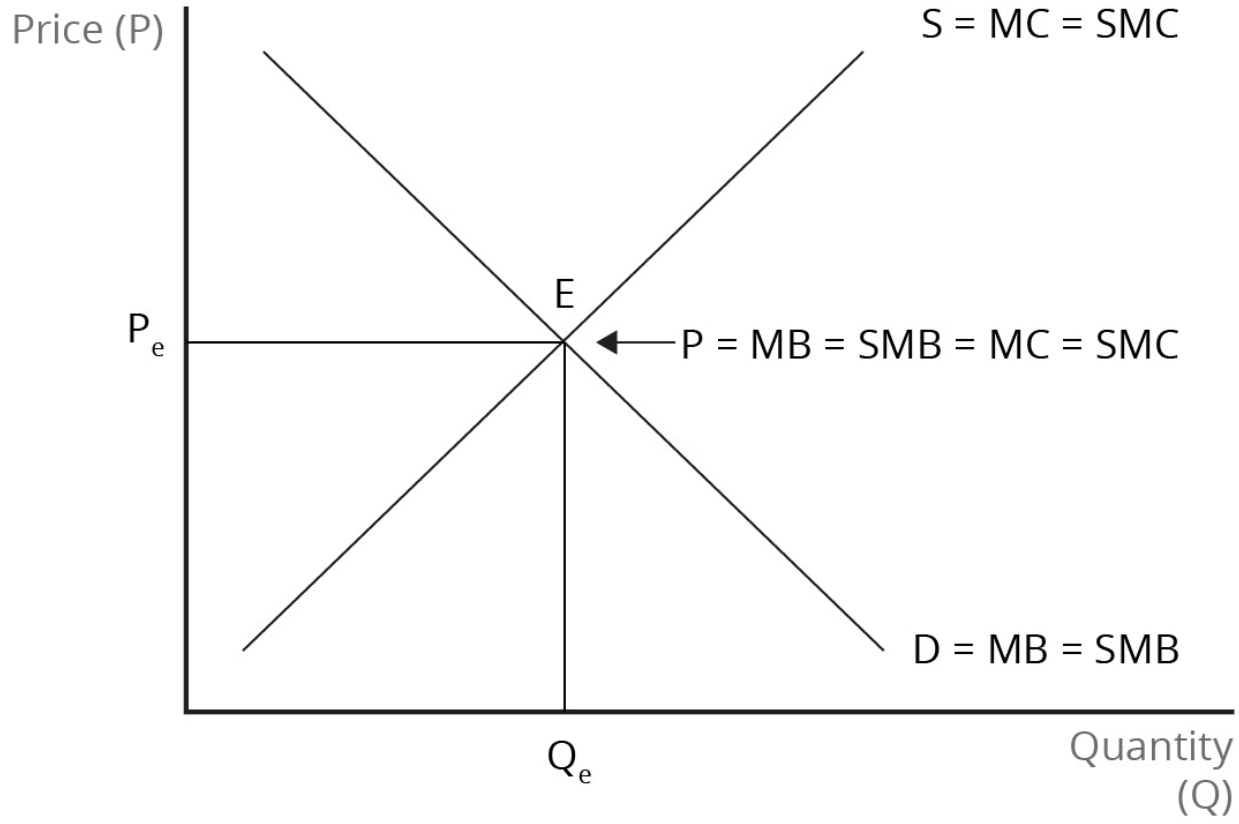

Figure 6.1: Allocative Efficiency – An Ideal or "First-Best" World*. [See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

In the real world, there are differences between private and social benefits and costs, so private actions do not lead to the best outcomes for society. One important reason for these differences is the fact that markets often

fail, leading to either inefficient underproduction or inefficient overproduction. Market failures arise because of a lack of competition, the presence of external costs and benefits, public goods, and inadequate information.

If there is a lack of competition, market participants may influence market outcomes in their favour by restricting production and raising prices relative to their efficient levels. If businesses can ignore external costs, then the market outcome would be inefficient overproduction. Conversely, if external benefits can be obtained without paying for the good, private businesses would produce less than the efficient quantity. There would also be an undersupply of public goods, which are characterized by non-rivalry and non-excludability. Because people can consume the product without reducing the ability of others to simultaneously consume it – non-rivalry – and because it is very difficult to exclude non-paying consumers from consuming the product – non-excludability – there will again be a tendency for too little of the good to be produced.

There are two basic approaches that governments use to address externalities. One is the tax-and-subsidy approach, and the other is the property rights approach. With regard to the former approach, if the social marginal cost (SMC) exceeds the private marginal cost (MC), there are costs being borne by people outside the market transaction. Because businesses can ignore these external costs, too much of the good will be produced and consumed. To bring private and social costs into alignment, the government can impose a tax that's equivalent to the difference between private and social costs. If **external benefits** are present, then social marginal benefit (SMB) exceeds private marginal benefit (MB). In this instance, too little of the good will be produced. In order to encourage additional production, the government can provide a subsidy to suppliers.

Externalities often result from a lack of clear property rights. Environmental degradation through pollution, for example, can come about when it is not clear who owns the property rights. When property rights are improperly specified, strong incentives to use resources in ways that maintain their value are lacking. If property rights are clear, the owner of the resource can negotiate with anyone who wants to use it, leading to a mutually beneficial outcome. Therefore, if property rights to an asset are clearly defined and if it is possible for owners and users to bargain, a socially efficient allocation of or the resource will result, regardless of who has the property rights.

Image Descriptions

Figure 6.1: Allocative Efficiency – An Ideal or "First-Best" World

The image is a graph with 'Price (P)' labelled on the vertical y-axis and 'Quantity (Q)' on the horizontal x-axis. There the supply curve line and demand curve line form an "X" at the centre of the graph. The downward-sloping supply curve line is labelled S = MC = SMC, where 'MC' is marginal cost and 'SMC' is social marginal cost. The upward-sloping demand curve is labelled D = MB = SMB, where 'MB' is marginal benefit and 'SMB' is social marginal benefit.

At the intersection of the supply and demand curves the equilibrium point is marked E. A horizontal line extending leftward from point E intersects with the Price axis at P_e. A vertical line dropping down from point E intersects the Quantity axis at Q_e. An arrow pointing to E is labelled P = MB = SMB = MC = SMC

[back]

6.2 Supporting Domestic Production, Employment, and Well-Being

Most "**second-best world**" arguments for protection contend that an industry should be favoured over imports because additional social benefits can be obtained from domestic production and employment. Some variations of this basic view are the following:

- There are spillover benefits from domestic production that accrue to other industries and businesses in the economy.
- Employment in the industry generates worker competencies and attitudes that benefit other industries and businesses.
- Protection of a nascent industry with high production costs will lead to efficient, internationally competitive industries over time.
- Protection of an industry facing relentless import competition may be warranted to support the income of workers as they transition to other avenues of employment.
- It is important to support production in industries that are critical to national security.

At the heart of these arguments is the idea that social benefits are not fully captured by private production and employment, and therefore, government intervention is necessary to protect the domestic industry from import competition.

In the analysis that follows, we will examine the situation of a small country that promotes production in an industry because it generates external benefits by using an import tariff.

Before the small country engages in international trade, the domestic price is high, as indicated by the intersection of the domestic supply curve (S_d) and the domestic demand curve (D_d) in Panel (a) of **Figure 6.2**. In light of its inability to influence the world price, the small country can purchase any amount of the product at the prevailing world price (P_w). The world price is indicated by a horizontal line that lies below the domestic equilibrium. With international trade, equilibrium in the domestic market is at point E, where the quantity purchased by domestic consumers is D_0 and the quantity supplied is S_0. The difference between D_0 and S_0 represents the level of imports before the tariff is imposed.

As we have seen earlier, the domestic price increases when the import tariff is imposed. The new domestic price is represented by the horizontal line, $\mathrm{P}_w + t$, where t is the tariff. The higher domestic price causes domestic consumers to buy a smaller quantity, D_1 and domestic producers to boost their level of production to S_1. As a result, the level of imports falls from $\mathrm{D}_0 - \mathrm{S}_0$ to $\mathrm{D}_1 - \mathrm{S}_1$. The small country suffers the usual

deadweight losses of the production effect (area b) and the consumption effect (area d). With the import tariff, the country is now choosing to substitute higher-cost domestic production for lower-cost imports and discouraging some purchases to which consumers attach a higher value than indicated by the world price.

However, our small country derives additional social benefits from domestic production that is not captured by domestic producers themselves. Such additional benefits may stem, for instance, from **national security** concerns or transferable worker skills. This situation is indicated in the Panel (*b)* of **Figure 6.2,** which shows the marginal external benefits from production. As production increases, the additional external benefit declines, which gives us a downward-sloping marginal external benefit curve (MEB). Production is measured on the same scale in both **Figure 6.2 (*a*)** and **Figure 6.2 (*b*).** The additional social benefit that results from the increase in domestic production due to the import tariff is indicated by area e. Whether the country eventually gains or loses economic well-being depends on whether the additional social benefits (area e) exceed the deadweight losses due to the production and consumption effects (areas b and d). If area e is greater than the sum of areas b and d, then our small country will be better off from the tariff.

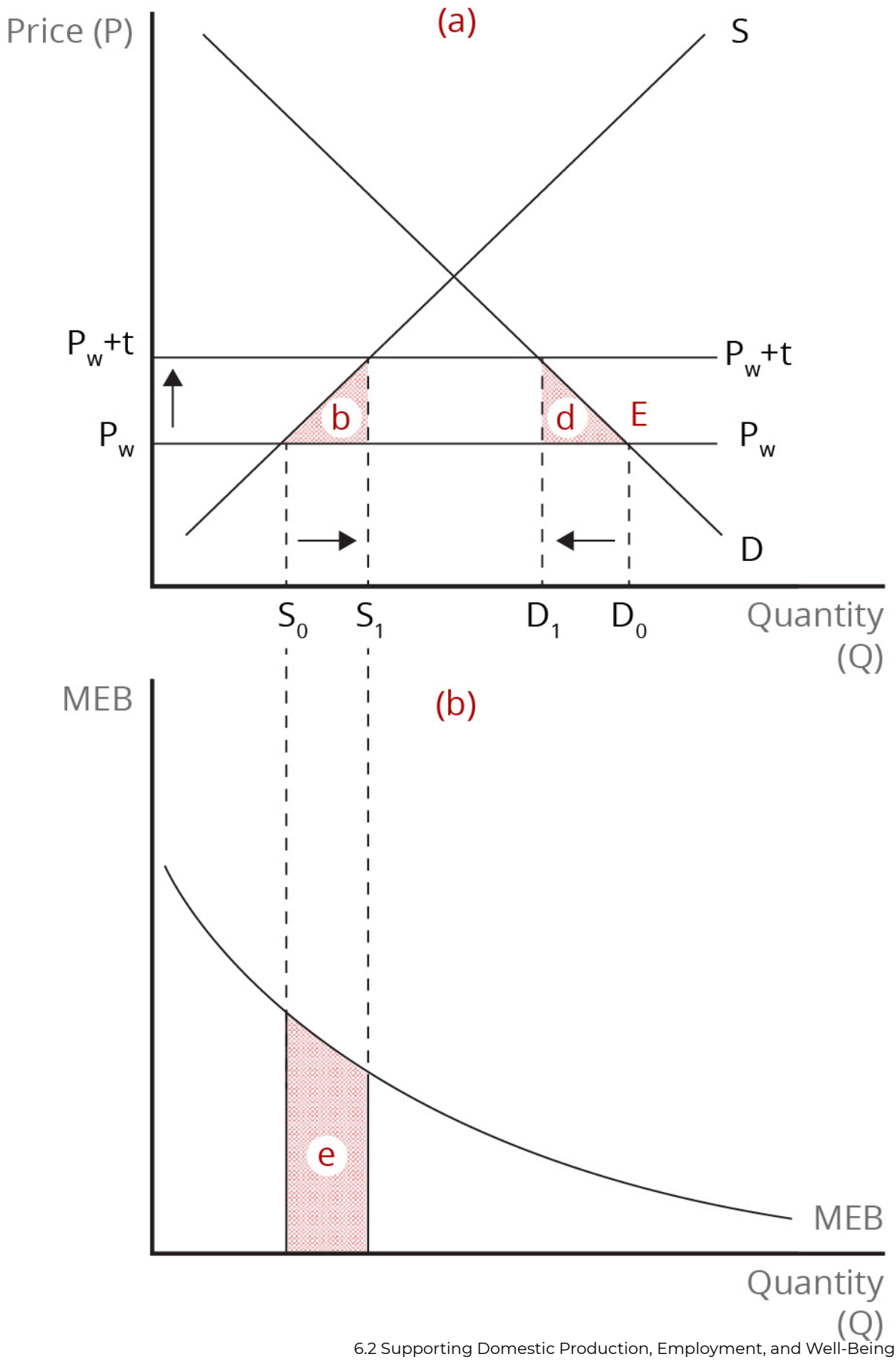
(a)
Price (P)
S
P_w+t
P_w
P_w+t
P_w
b
d
E
D
S_0
S_1
D_1
D_0
Quantity (Q)
(b)
MEB
e
MEB
Quantity (Q)

Figure 6.2: Protecting Domestic Production with an Import Tariff. *[See image description].*

We have seen that the protection of a domestic industry with an import tariff can improve a country's economic well-being if external benefits are present. However, supporting the industry with an import tariff may not be the appropriate "second-best" policy. We will now compare an import tariff with a production subsidy to evaluate which policy is more efficient from the standpoint of society as a whole.

Image Descriptions

Figure 6.2: Protecting Domestic Production with an Import Tariff

The image comprises two vertically arranged graphs, the top labelled (a) and the lower labelled (b). Graph (a) is a supply-and-demand graph with price (P) on the vertical axis and quantity (Q) on the horizontal axis.

There are two intersecting lines: a downward-sloping demand line (labelled D) and an upward-sloping supply line (labelled S). Two horizontal lines extending from the lower half of the y-axis are labelled P_W+t and P_W. A vertical arrow points up from P_W to P_W+t. The intersection of D and P_W is labelled "E."

Four quantity levels are marked along the horizontal axis, S_0, S_1, D_1, and D_0, with dotted horizontal lines up to the intersections of the price lines with the supply and demand curves. A horizontal arrow points right from S_0 to S_1; another arrow points left from D_0 to D_1.

Area b is a shaded triangle formed by S, P_W and S_1. Area d mirrors b, formed by D_1, P_W, and D.

Graph (b) includes a vertical axis labelled MEB, and a horizontal axis labelled Quantity (Q). A single curved line sloping downwards from left to right, beginning from two-thirds up the y-axis to the end of the x-axis, is labelled "MEB." Dotted lines extend down from the S_0 and S_1 marks on the x-axis of graph (a). Area e is the shaded space below the MEB line and between the dotted lines.

[back]

6.3 Comparing an Import Tariff with a Production Subsidy

An alternative to an import tariff to support the domestic industry is the use of a production subsidy. As in the case of an import tariff, a production subsidy increases the domestic price over the world price. However, it does so only for domestic producers. In **Figure 6.3**, presuming the small country is involved in international trade, the domestic price is equal to the world price, P_w before the production subsidy is granted. With the production subsidy, the price that domestic producers receive increases to $\mathrm{P}_w + s$, where s represents the subsidy. On the assumption that the subsidy is equivalent to the import tariff, producers respond by boosting production to the same extent. As in the case of the tariff, higher-cost domestic production is substituted in consumption for lower-cost imports. With domestic production increasing from S_0 to S_1, the nation suffers the usual deadweight loss of the production effect – it loses area b.

However, there will be no deadweight loss from the production subsidy for our small country due to the consumption effect (area d). This is because the subsidy does not raise the price that consumers pay for the product. Domestic consumption does not fall as consumers continue to pay the world price Pw. Since the external benefit is the same in the case of the tariff as for the subsidy, the latter produces an outcome in terms of net national well-being that is superior. Since the external benefit occurs in production, it is better to address the distortion in a way that does not change the price consumers pay. Our small country will gain economic well-being with a production subsidy if the external benefits exceed the deadweight loss due to the subsidy; that is, if the size of area e exceeds the size of area b.

Our conclusion is that the net benefit of the production subsidy is greater than that of an import tariff because the nation does not incur the consumption effect (area d). However, for this to be true, we assume that no other gaps between private and social incentives emerge as a result of the government having to pay for the subsidy. In short, we must assume that additional net social losses do not arise because the government must raise additional taxes or cut spending on competing policies. Raising income taxes changes people's incentives to earn additional income through incremental effort. In addition, if government spending reallocated to fund the subsidy had previously been providing public goods worth more than their marginal cost, there is a further social cost incurred.

Suppose that, instead of boosting production, the government's aim was to preserve jobs in the import-

competing industry. Then, the same basic conclusions will hold, namely, a production subsidy would be a superior policy to trade protection in the form of an import tariff in that it helps domestic producers without hurting consumers. However, it is possible to improve upon this policy by targeting its application even more closely to the source of the problem. If the problem lies with the number of jobs in the industry, then it would be better to link the subsidy to the number of employed workers.

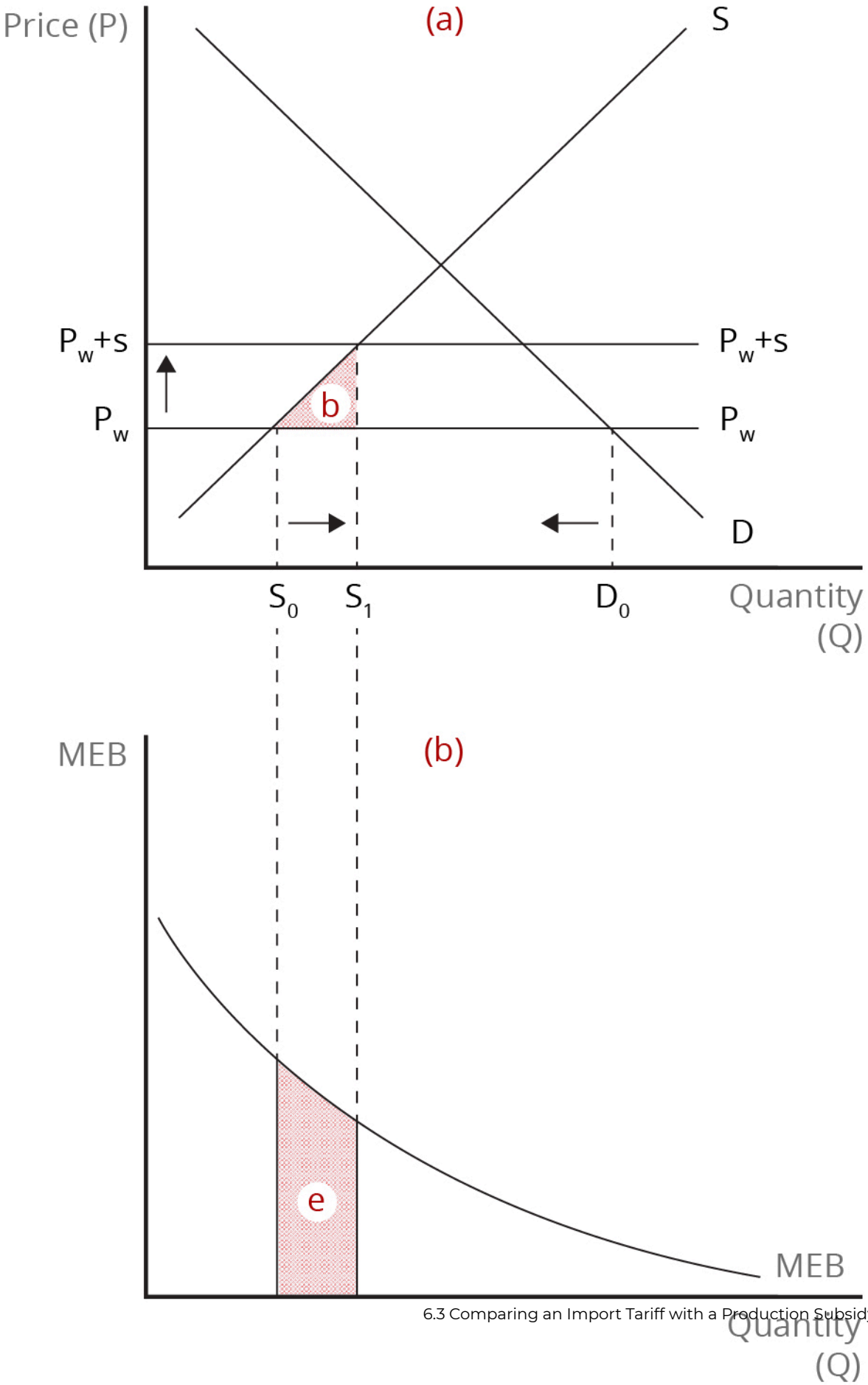
Price (P)
(a)
S
P_w+s
P_w+s
b
P_w
P_w
D
S_0
S_1
D_0
Quantity (Q)
MEB
(b)
e
MEB
Quantity (Q)

Figure 6.3: Supporting Domestic Production with a Production Subsidy. *[See image description].*

Image Descriptions

Figure 6.3: Supporting Domestic Production with a Production Subsidy

The image comprises two vertically arranged graphs, the top labelled (a) and the lower labelled (b). Graph (a) is a supply-and-demand graph with price (P) on the vertical axis and quantity (Q) on the horizontal axis.

There are two intersecting lines: a downward-sloping demand line (labelled D), and an upward-sloping supply line (labelled S). Two horizontal lines extending from the lower half of the y-axis are labelled P_W+s and P_W. A vertical arrow points up from P_W to P_W+t. The intersection of D and P_W is labelled "E."

Three quantity levels are marked along the horizontal axis, S_0, S_1, and D_0, with dotted vertical lines up to the intersections of the price lines with the supply and demand curves. A horizontal arrow points right from S_0 to S_1; another arrow points left from D_0 toward S_1.

Area b is a shaded triangle formed by S, P_W and S_1.

Graph (b) includes a vertical axis labelled MEB, and a horizontal axis labelled Quantity (Q). A single curved line sloping downwards from left to right, beginning from two-thirds up the y-axis to the end of the x-axis, is labelled "MEB." Dotted lines extend down from the S_0 and S_1 marks on the x-axis of graph (a). Area e is the shaded space below the MEB line and between the dotted lines.

[back]

6.4 The Case of the Infant Industry

The **infant industry** argument for protection from import competition has existed for a long time, having first been advocated by Alexander Hamilton in 1792 in the United States. The essential idea is that government can support emerging industries with temporary import tariffs until they are sufficiently strong to produce at comparatively low cost. Eventually, such domestic industries will be able to hold their own in international markets without tariff protection. One important respect in which this argument for protection differs from others is that it is a dynamic rather than a static one. The expectation is that the efficiency of the industry will improve over time. The GATT/WTO recognizes the infant-industry argument as a legitimate reason for protection.

We demonstrate the infant-industry case for protection in a small country in **Figure 6.4**. The domestic market, where D_d represents the domestic demand curve and S_d represents the domestic supply curve, yields a relatively high price for the product at the intersection of the two curves. Since the country is small, it is able to purchase any quantity of the product at the lower world price, P_w. Initially, we assume that domestic production in our small country is not at all competitive with foreign production, which means that the domestic supply curve lies above the world price line, P_w, throughout its entire range. At the initial equilibrium with free trade (point E), the amount of the product purchased by domestic consumers is indicated by D_1 – all domestic purchases are satisfied by imports and domestic production is not viable.

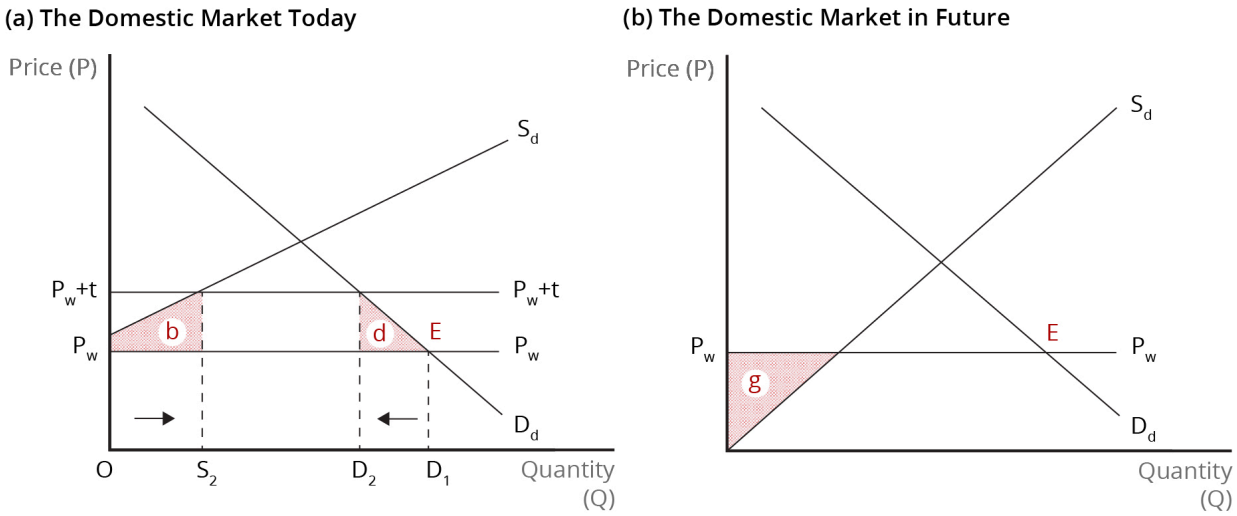

Figure 6.4: Protecting an Emerging Industry with a Temporary Tariff. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

In order to encourage domestic production, the government imposes an import tariff, which raises the

domestic price to $P_w + t$, where t is the tariff. As a result of the higher domestic price, producers supply the quantity of the product indicated by S_2 and consumers reduce the quantity they purchase from D_1 to D_2. Thus, the quantity of imports falls from D_1 to $D_1 - S_1$ to $D_2 - S_2$. With the import tariff allowing domestic production to begin, the usual deadweight losses due to the production effect and the consumption effect are incurred. Initially, therefore, the small country would experience the usual net national loss in economic well-being from tariff protection. This situation is depicted in **Figure 6.4 (*a*).**

However, as domestic production continues over time, domestic producers gain experience and are able to find ways to lower their production costs. This means that the domestic supply curve, S_d, begins to shift downward over time. The downward shift of the domestic supply curve facilitates the creation of producer surplus that would not exist in the absence of the tariff. Once the domestic industry becomes internationally competitive, the import tariff can be removed. This situation is depicted if **Figure 6.4 (*b*)**, where the domestic supply curve is lower, the tariff is removed, the domestic price is once more equal to the world price, and producer surplus equal to area g has been created.

The validity of the infant-industry argument depends on whether the gains in economic well-being exceed the costs. Since this is a dynamic argument, we must compare the stream of benefits (i.e., producer surplus) that domestic producers get once their production becomes internationally competitive with the stream of social costs, which are the deadweight losses incurred by the country while the tariff was in effect. Recall that the deadweight losses are the usual production and consumption effects that arise as a result of the tariff. For the infant-industry argument to be valid, the stream of producer surplus (social benefits) must exceed the stream of social costs (deadweight losses) when expressed in present value terms.

While the infant-industry argument is plausible, there are questions about how effective it is in practice. Some observers contend that government should intervene to support emerging industries only if firms are unable to obtain private financing or if there are positive externalities in production. In most business ventures, firms usually suffer losses before they eventually become profitable. Even when they struggle to become profitable, such firms are often able to secure private financing for feasible business opportunities. If firms are unable to find funding, perhaps because financial markets are imperfect, then there may be a role for government in providing financing. In addition, if external benefits result from production, government may intervene to provide support.

If there is good reason for government to support a nascent industry, it must consider which policy is best for that purpose. As we saw before when we compared an import tariff with a production subsidy, it is most appropriate for government to intervene as close as possible to the source of the problem. If the intent is to boost production, a production subsidy would be a superior policy to an import tariff as the net national loss would be smaller. If imperfect financial markets make it difficult to obtain financing, government may provide subsidized loans to fledgling firms. If the problem is that infant-industry firms are losing workers to firms elsewhere in the economy, then government can subsidize worker training.

Another question related to the industry argument is whether the industry will ever become efficient. Observers often contend that the infant industry never grows up. Protected by import tariffs or other policies, producers within the industry often are not motivated to reduce their production costs. While the infant-

industry argument makes the case for temporary tariff protection, producers are often successful in lobbying for such protection to be maintained over long periods of time. Considerable dispute remains about the success of the infant-industry case in practice. While Brazilian motor vehicle manufacturing is cited as a failure (Carbaugh, 2015), the Japanese computer and semiconductor industries are reputed to represent cases of successful infant-industry protection (Pugel, 2020).

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Image Descriptions

Figure 6.4: Protecting an Emerging Industry with a Temporary Tariff.

The image comprises two side-by-side graphs, labelled (a) “The Domestic Market Today” and (b) “The Domestic Market in Future” respectively. Both are supply-and-demand graphs with price (P) on the vertical axis and quantity (Q) on the horizontal axis.

Graph (a) has a downward-sloping demand line (labelled D_d) and an upward-sloping supply line (labelled S_d) that begins one-third of the way up the y-axis, between two horizontal lines extending from the lower half of the axis, labelled P_W and $P_W + t$. The intersection of D_d and P_W is labelled “E.”

Three quantity levels are marked along the horizontal axis, S_2, D_2, and D_1, with dotted horizontal lines up to the intersections of the price lines with the supply and demand curve, respectively. A horizontal arrow points right from the y-axis to S_2; another arrow points left from D_1 to D_2.

Area b is formed by the y-axis, S_d, S_1, and P_W. Area d mirrors b, but is a true triangle formed by D_s, P_W, and D_d.

Graph (b) is similar, with S_d and D_d, but there is only one price line, P_W. The intersection of D_d and P_W is labelled “E.” Area g is a shaded triangle beginning on the origin point and formed by S_d and P_W and the Y-axis.

[back]

6.5 Income Support and Adjustment in Shrinking Industries

Governments must often decide whether to provide support for industries facing relentless import competition that causes them to shrink. As an example, the textile and clothing industries in Canada have continually lost domestic market share, shedding a large number of jobs over time. With such industries in long-term decline, governments may decide to provide temporary protection from imports to help resources employed within the industry find application elsewhere.

The arguments for protection against imports in the case of a **dying industry** are the same as for an infant industry. There may be acceptable reasons to support the industry if external benefits exist and are sufficient to outweigh the usual deadweight losses of the production and consumption effects. That is, if area $e >$ area $(b + d)$. Even so, import protection may not be the most appropriate policy. A policy that gets to the root of the problem may be superior because it reduces economic loss. Since there is no reason to make imports more costly for consumers, thereby reducing consumption, a production subsidy which avoids the consumption effect will be better.

In addition, since a large number of jobs are continually being lost, governments can facilitate the transition of workers into other industries by providing assistance for retraining, job search, and relocation. In practice, governments provide workers who lose their jobs for structural reasons with **trade adjustment assistance (TAA)**. Similarly, firms and communities may be able to avail themselves of low-interest financing and technical assistance to develop new lines of production and facilitate market research.

6.6 Other Arguments for Protection

Generation of Tariff Revenue

In advanced countries, well-developed systems of commerce and financial reporting make it comparatively easy to collect revenue to fund government programmes. Since the collection of income tax revenue is not a problem, revenue tariffs are scarcely used in advanced countries. For instance, tariff revenue currently accounts for roughly 1% of government revenue in the United States. In contrast, developing-country governments have considerably greater difficulty in collecting income tax revenue because informal business activity accounts for a much larger part of their economies. One area where business transactions are well documented in developing countries is that of international trade. This makes import tariffs and other levies on international trade important instruments for generating government revenue in developing countries. Accordingly, there is a high dependence on tariff revenue in these countries. The **tariff revenue case** for protection seems valid in the case of developing countries, which can use tariff revenues to implement social programmes where external benefits are likely to be derived.

Reducing Consumption of Undesirable Imports

Sometimes, governments deem it necessary to limit the importation of goods they consider undesirable. For instance, governments may be concerned that some imported goods are produced using methods that are harmful to the environment or produced using child labour. In such situations, importing-country governments may view protectionist policies as providing an incentive for offending exporting countries to adopt more environmentally friendly policies or improve labour laws. If an import tariff makes it more difficult (i.e., more costly) for the exporting country to supply its products to the importing country, then this may lead to less pollution or less utilization of child labour. While it may be possible to address these issues through international negotiation – international trade pacts sometimes contain side agreements on environmental and labour concerns – trade policies are often used because they are within the control of the importing country. It is also often true that the desire to limit the consumption of undesirable products is used as a pretext under which support could be provided to an import-competing industry.

The National Security Argument

The **national security** argument holds that production in some industries are important to national security. Industries that are often cited with respect to this argument include aerospace, advanced electronics, semiconductors, metals and minerals, energy and food production. It is vitally important that some threshold of domestic production be attained. When the Trump Administration imposed tariffs on imports of aluminum and steel for several countries in 2018, it cited national security concerns as its main motivation. We must note that argument is not often used as a justification rather than a legitimate basis for import protection.

6.7 The Cost of Protection

We have seen, in the small country-case, that a tariff (and other forms of protection from imports) reduces net national well-being, due primarily to the sum of the production and consumption effects. The actual loss can be greater if an import quota is the policy instrument used for protection and the tariff-equivalent revenue cannot be captured by the government or importers. The loss of economic well-being can also be larger if administrative costs and costs that occur over time – dynamic costs – are taken into account. In evaluating the net national loss, we will focus on the sum of the production and consumption effects, but we recognize this as providing a lower bound to the overall cost of protection.

We can estimate the size of the net national loss by calculating the areas that represent the production effect and the consumption effect, combined. The information we require to do so is the tariff $\left(t \right)$ and the reduction in imports after the imposition of the tariff. If another policy was used to grant import protection to domestic producers, such as a quota, the tariff-equivalent can be approximated by the difference between the domestic price and the world price. For a small country, the net national loss from tariff protection is given by the following expression:

$$\text{Net National Loss} = \frac{1}{2}\left(\text{Tariff}\right)\left(\text{Reduction in Import Quantity}\right)$$

This nature of the calculation is indicated graphically in **Figure 6.5**, where the tariff $\left(t \right)$ is equal to $\mathrm{P}_d - \mathrm{P}_w$ and the reduction in imports is $\mathrm{M}_w - \mathrm{M}_d$, where M_w is the free-trade quantity of imports and M_d is the quantity of imports after the imposition of the tariff.

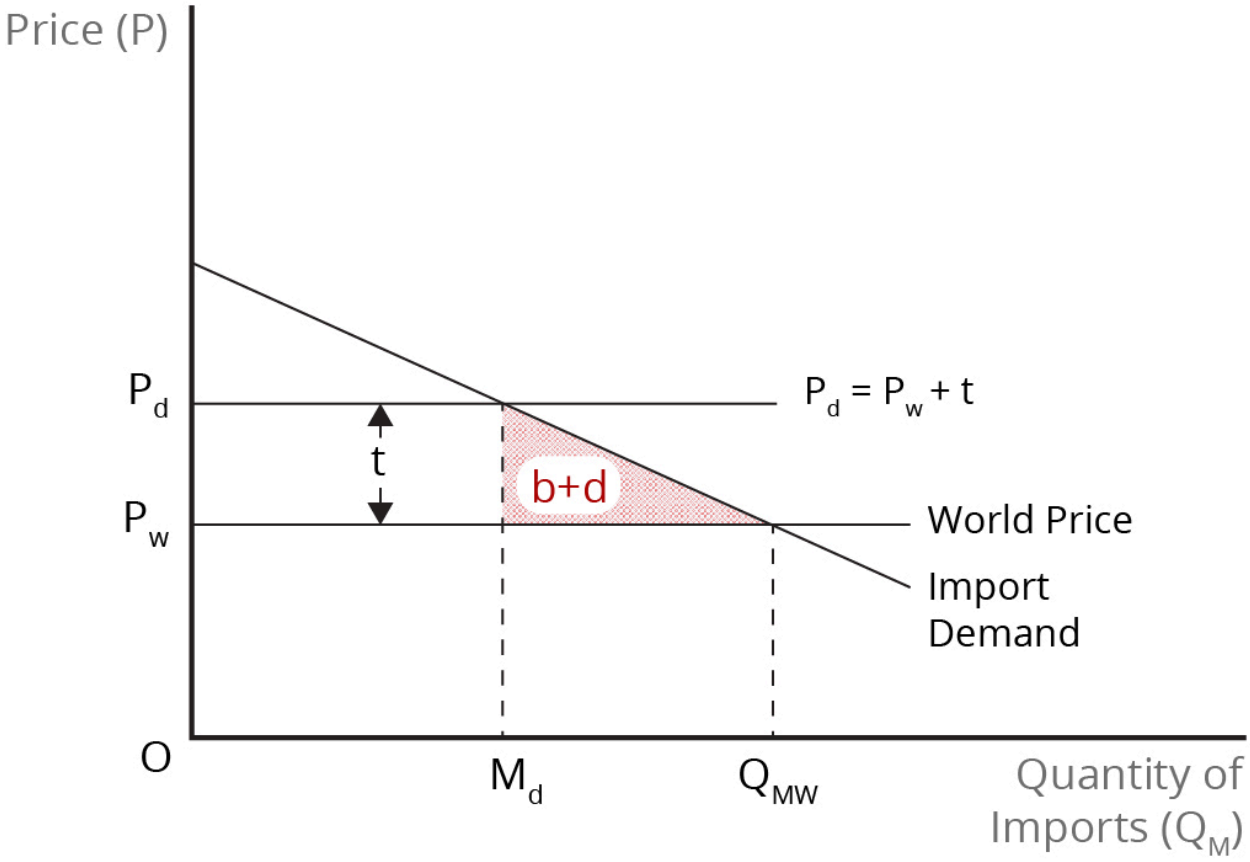

Figure 6.5: Net National Loss Due to an Import Tariff. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

A familiar way of representing the net national loss is to view it relative to the size of the economy or gross domestic product (GDP). Beginning with the above expression, we can derive an expression for the net national loss as a percent of GDP as follows:

$$\text{Net National Loss} \Rightarrow$$

$$\text{Net National Loss} \Rightarrow$$

$$\text{Net National Loss} \Rightarrow$$

Using this last expression, we see that the cost of protection in a developed country is likely to be relatively low for most products that are subject to tariff or other protection. This is because tariffs have been significantly reduced over time under the GATT/WTO and currently stand at average rates of less than 5%. Moreover, for many products, the import value as a share of GDP will likely not be too large. Presuming a 5% tariff rate, a reduction in import quantity of 25%, and that the value of the import represents 10% of GDP, then the overall cost of import protection relative to the size of the economy is quite low at 0.06% of GDP $(0.5 \times 0.05 \times 0.25 \times 0.1)$. Note that this estimate is based on a significant reduction in imports and a comparatively high share of the imported product in GDP. As this example shows, the net national loss from import protection is unlikely to be large for countries that have low tariffs and are not particularly dependent on imports.

However, the actual cost of protection may be higher for a number of reasons. First, a country whose imports are subject to import tariffs might retaliate with its own tariffs. Retaliation can lead to an escalation of protection and an eventual fall in trade. Thus, not only will there be a direct increase in the cost of import protection, but additional economic costs will be incurred as exports fall over time. Second, the fact that tariffs or other policies of import protection must be enforced to be effective means that resources that could have been used elsewhere in the economy must now be used for enforcement. As a result, the nation bears the opportunity costs related to enforcement. Third, it is generally true that domestic producers lobby for protection. To the extent that they devote resources to lobbying to increase their economic surplus, this would reduce any producer surplus they eventually get from protection. Moreover, if a quota is used for protection, domestic producers may use resources in order to get the tariff-equivalent revenue, which again increases the net national loss. Other sources of potential national loss are a deterioration in the terms of trade if a VER allows foreign producers to raise their prices and obtain the tariff-equivalent revenue. Last, to the extent that free trade fosters innovation in the import-competing industry, a tariff is likely to have the opposite effect.

Review: Arguments for Protectionism

Review your understanding of trade protectionism by watch this video.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=379#oembed-1

Source: Solina Lindahl. (2018, January 21). International trade arguments for trade protectionism. [Video]. YouTube. https://www.youtube.com/watch?v=qOaur9PSCbE

Image Descriptions

Figure 6.5: Net National Loss Due to an Import Tariff

The image depicts a graph with “Price (P)” labelled on the vertical axis and “Quantity of Imports (Q_M)” labelled on the horizontal axis. There is a downward-sloping line labelled Import Demand. The world price level is indicated by a horizontal line labelled P_W, which intersects the demand curve. Above this, another horizontal line is labelled $P_d = P_W + t$. Between the price lines is a vertical double-arrowed line marked with “t.”

Two quantity levels are marked along the horizontal axis, M_d and Q_{MW}, with dotted vertical lines up to the intersections of the price lines with the demand curve.

Area b + d is a shaded triangle formed by M_d, P_W, and the Import Demand line.

[back]

Chapter 6 Summary

LO 6.1 Government Intervention in International Trade in Instances of Market Failure

- Free trade is usually the best policy from the standpoint of social efficiency. However, there are often good reasons for government to implement policies that protect domestic industries from import competition.
- Many arguments for protection are related and, in essence, contend that domestic industries that compete with imports might be supported if they yield additional social benefits.
- Some specific reasons advanced in favour of protection are:
    - To support domestic production and employment;
    - To protect emerging industries until they can compete internationally;
    - To support income and facilitate adjustment in shrinking industries;
    - To generate government revenue, particularly in developing countries;
    - To reduce consumption of imported products considered undesirable; and
    - To promote national security.

LO 6.2 Import Tariffs Boost Production, Employment and National Well-Being

- Protection of a domestic industry with an import tariff can increase production, employment, and national economic well-being if external benefits are enough to more than offset the usual deadweight losses of the production effect and the consumption effect.

LO 6.3 Comparing Production Subsidy or Similar Policy to Import Tariff

- A production subsidy or similar policy is usually superior to an import tariff as a means of supporting a domestic industry.
- However, if external benefits are present in the industry, a production subsidy will lead to a superior outcome.
- This is because the external benefits must be sufficient to offset only the deadweight loss due only to the production effect, as national well-being is not reduced by loss of consumption due to higher domestic prices.

LO 6.4 Conditions that Justify the Promotion of an Infant Industry with Tariff Protection

- A temporary import tariff can aid the development of an infant industry if it leads to the creation of a stream of benefits to domestic producers that exceed, in present value terms, the stream of costs due to the production and consumption effects incurred while the tariff was in effect.
- While an import tariff can be effective in providing support to an emerging industry, the government may be able to use more appropriate policies, including subsidized loans and subsidized worker training programmes.

LO 6.5 A Support for Industries that Are Experiencing Long-Term Decline

- A government may also support a shrinking industry with an import tariff. However, given the industry's structural decline, it also makes sense for the government to assist the industry, its workers, and affected communities with trade adjustment assistance.

LO 6.6 Other Arguments for Protection Against Imports

- Other arguments include the generation of revenue, reduced consumption of undesirable imports, and the promotion of national security.
- Import tariffs can be an important means of government revenue collection for developing countries, which tend to have difficulty generating revenue through income taxes.
- Trade policy can also be used to address concerns relating to environmental and labour conditions from which imports originate and to national security.

LO 6.7 Estimating the Overall Cost of Import Protection

- The net national loss from an import tariff can be estimated using information on the size of the tariff and the reduction in imports.
- Relative to the size of the economy, the net national loss from import protection is unlikely to be large for countries which have low tariffs and are not particularly dependent on imports.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=383#h5p-6

References and Attributions

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

CHAPTER 7: TRADE POLICIES: DUMPING AND EXPORT SUBSIDIES

Chapter 7 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Identify the economic effects of dumping and export subsidies.
2. Identify the economic effects of anti-dumping and countervailing duties.
3. Describe how dumping and export subsidies can lead to trade disputes.
4. Discuss the dispute settlement process of the World Trade Organization.
5. Discuss proposals for reform of the World Trade Organization rules relating to dumping.

Think About It!

Video: Free Trade vs. Protectionism

Before reading this chapter, watch this video outlining the basic concept of dumping and export subsidies.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=465#oembed-1

Source: International Trade Administration. (2020, February 13). *How dumping and unfair subsidies impact trade.* [Video]. YouTube. https://www.youtube.com/watch?v=6qFkn_4duj0

Reflection Questions

Before delving into the discussion, we encourage you to reflect on the following questions:

1. Why do you think that producers in any country would want to sell their products cheaply in foreign markets? In other words, what benefit do these producers get from sch sales?
2. What effects do you think such low-priced sales will have on consumers in importing countries?
3. Why do you think a national government would want to subsidize exports?
4. What effects do you think export subsidies will have on producers and consumers in the exporting country and on consumers in the importing country?

Introduction

In this chapter, we describe the use of dumping and export subsidies in international trade and evaluate their effects on economic well-being, domestically and abroad. National governments and their domestic producers often adopt dumping and export subsidies are strategies to boost domestic exports. Dumping involves selling products in foreign markets at prices either below those for domestic sales or below the average total cost of production. Export subsidies are payments or other financial incentives given to producers to promote exports.

We will see that both dumping and export subsidies benefit importing-country consumers as well as the importing countries as a whole. These policies also benefit producers in exporting countries as they can expand the size of their market by making sales to foreign customers. Meanwhile, exporting-country consumers suffer economic losses as increasing exports raise domestic prices. While the exporting country can benefit economically from dumping, export subsidies lead to a net national loss.

Notwithstanding the economic gains that importing countries get from dumping and export subsidies, their governments are often concerned that domestic producers are injured by cheap imports. As a result, they attempt to “level the playing field” by imposing import duties designed to offset any advantages that foreign producers have in their domestic market. These duties, of course, remove the gains that importing-country consumers get from dumping and export subsidies but, as we will see, lead to an efficient global allocation of resources.

However, we recognize that the imposition by national governments of offsetting duties aimed at removing unfair advantages that foreign producers have in their domestic market can prompt retaliation by other countries and eventually lead to international trade disputes. Therefore, we will discuss the procedure for the resolution of trade disputes under the WTO and evaluate its

effectiveness. Last, we examine several proposals for the reform of the dispute resolution mechanism of the WTO.

7.1 The Effects of Dumping and Export Subsidies

In earlier chapters, we looked at the effects of government policies used to protect domestic producers from import competition. Sometimes, governments support their domestic producers by helping them to increase their sales in foreign markets. Two strategies that governments and their domestic producers use to raise foreign sales are dumping and export subsidies. We will examine the economic effects of these strategies on the exporting country, on the importing country, and on the world as a whole. Many countries consider dumping and export subsidies to be unfair trade and often retaliate against their use. Indeed, the WTO outlaws export subsidies, allows antidumping and countervailing duties to be applied, and has a mechanism to resolve disputes stemming from the use of these practices.

Dumping

Dumping is the selling of products in foreign markets at prices that are below **fair market value**. One interpretation of fair market value is the price paid by similar buyers in the producer's domestic market or in a third-country market if no domestic market exists for the product. Under this price-based definition, dumping occurs whenever a producer sells the product in a foreign market at a price below that in the reference market, after allowing for transportation and other costs. On this basis, dumping is international **price discrimination**, i.e., selling the same product to different buyers at different prices. Another interpretation of "fair market value" is average total cost of production, including an element for profit and overhead expenses. Dumping, according to this view, involves selling in foreign markets at a price less than the cost of production.

There are different types of dumping, namely, predatory dumping, sporadic dumping, and persistent dumping. **Predatory dumping** refers to the situation in which a firm initially charges a low price in the foreign market with the aim of getting rid of the competition. Once rival firms are driven out, the firm uses its now dominant market position to raise prices and its profits. For this strategy to be successful, the firm must feel confident that the new price will be high enough over a relatively long period to compensate for any losses incurred when the low initial price was in effect. Although predatory dumping is possible, there has been no real evidence to support its existence (Carbaugh, 2015; Pugel, 2020).

Sporadic dumping occurs when a firm disposes of excess inventories by selling in a foreign market at a lower price than in the domestic market (Carbaugh, 2015). Excess inventories may result from a recession in the domestic economy, seasonal increases in production, or improper planning. A firm may lower its prices during a recession to contain any decline in sales. If the domestic market price falls below the average total cost of production, the firm may continue its sales once the price it charges covers its variable cost. If any of these sales are made abroad, then this would be dumping. Sporadic dumping can be disruptive to competing firms in importing countries.

Persistent dumping occurs when a firm uses international price discrimination to increase its profits. For international price discrimination to be effective, demand conditions differ in the foreign and domestic markets, and the firm must be able to separate the domestic market from the foreign market. Once demand elasticities in the two markets differ and reselling across markets is hard to accomplish, this type of dumping can persist. In practice, because of high transportation costs and the existence of trade restrictions, it is relatively easy to keep international markets separate.

Persistent dumping is illustrated in **Figure 7.1**. The analysis shows that international price discrimination raises sales and profits. We assume that marginal cost is constant and identical for product sales in both domestic

and foreign markets. We assume that demand for the firm's product in the domestic market is inelastic while demand in the foreign market is elastic. This means that consumers in the domestic market are unlikely to significantly reduce how much they buy in response to a price increase. In contrast, foreign consumers are very likely to cut their purchases a lot if the firm raises the price.

In both markets, the firm chooses its profit-maximizing quantity by equating marginal revenue and marginal cost and charging the highest price consistent with demand conditions. The firm attains a higher price in the domestic market, where demand is inelastic, and a lower price in the foreign market, where demand is more elastic. Since marginal and average production costs are the same for both markets, we see that the firm makes a larger profit domestically than abroad. Moreover, we see that the firm increases its profits by extending sales to the foreign market. Once the firm can prevent reselling back into the domestic market, higher sales and profit levels can be sustained.

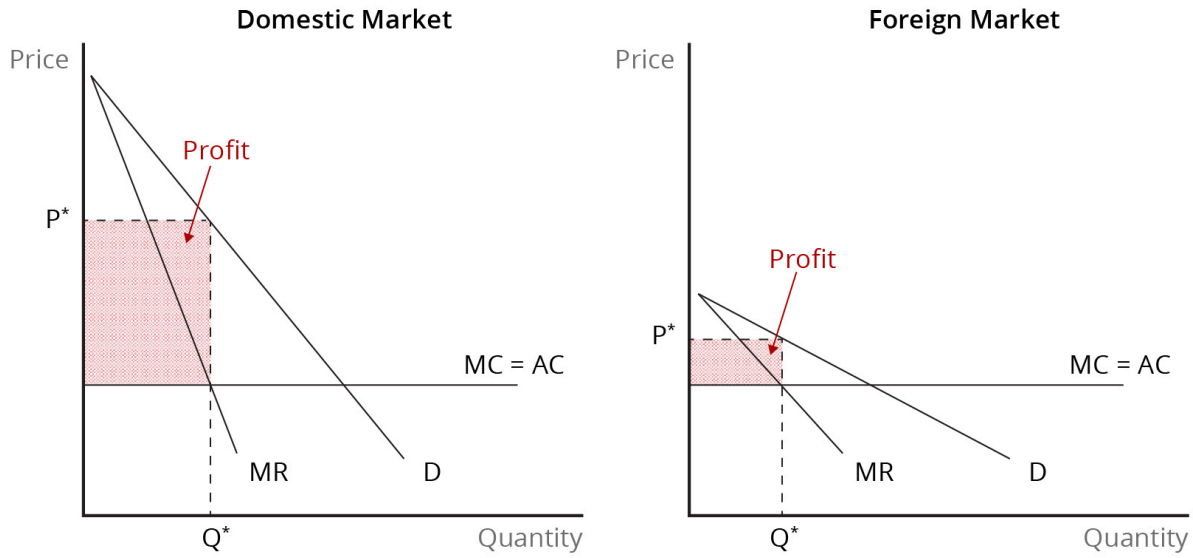

Figure 7.1: An Illustration of International Price Discrimination. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The Economic Effects of Dumping in a Small Importing Country

A small importing country benefits from dumping, which reduces the product price in the importing country below the world price. This means that consumer surplus in the importing country increases as consumers are able to buy a larger quantity of the product at a lower price. Meanwhile, producer surplus falls, as domestic firms now sell less at a lower price in the face of increased import competition. (See **Figure 7.2**). Overall, the country benefits as the increase in consumer surplus exceeds the reduction in producer surplus. This outcome is especially true for persistent dumping. However, it is unlikely to be true for predatory dumping. This is because the monopoly power that results from predatory dumping leads to reduced product availability and higher prices in the import market.

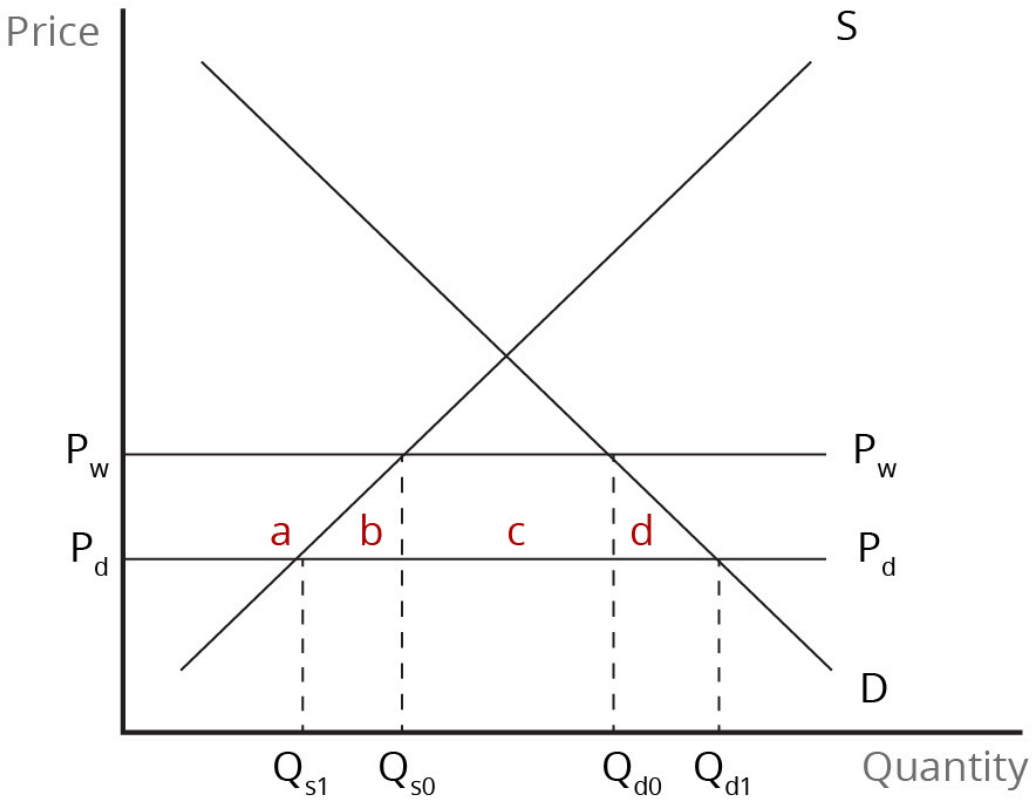

Figure 7.2: The Economic Effects of Dumping in Small Importing Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

As indicated previously, many countries view dumping as an unfair trading practice that harms their domestic producers. WTO rules allow affected countries to retaliate against dumping. If there is evidence that dumping has taken place and has materially injured domestic producers, a national government can impose an **anti-dumping duty** to offset any unfair advantage that foreign producers have in the importing-country market and "level the playing field." An anti-dumping duty is an additional tariff equal to the difference between the actual export price and the fair market value.

Countries have increasingly resorted to the use of antidumping laws to protect domestic producers against import competition. This is at least partly motivated by the reduction in import tariffs that has been achieved under the GATT/WTO. The protection that domestic producers get from charges of dumping is significant – average anti-dumping duties imposed against foreign exporters, on average, have been high. For example, average anti-dumping duties in Canada and the United States were in the 80-90 percent rage for the 2002–04 period (Pugel, 2020). Moreover, import-competing firms often use the threat of dumping complaints to get foreign exporters to raise their prices or reduce their exports.

Up until about 1990, a few advanced countries – the United States, Australia, the European Union and Canada – accounted for over 90% of all anti-dumping cases (Pugel, 2020, p.228). More recently, developing countries – including India, Brazil, Argentina, Turkey, Indonesia, Pakistan, and China — have increasingly filed antidumping cases. The products most involved in anti-dumping cases include steel, other metals, chemicals, plastics and

rubber products, and textiles and apparel. The countries whose exports have been most frequently charged with dumping include South Korea, China, Thailand, India, and the United States (Pugel, 2020, p. 228).

Export Subsidies

National governments sometimes support their domestic producers with export subsidies. An **export subsidy** is a payment or other financial incentive to producers per unit of exports to encourage them to increase sales for other countries. While there are several legitimate ways for governments to promote exports (e.g., sponsorship of trade fairs, market information), direct export subsidies are outlawed by the WTO. Governments, therefore, often mask the ways in which they subsidize exports to circumvent WTO rules. Still, the use of export subsidies is substantial in the case of agricultural products.

What are the effects of an export subsidy for the country implementing it, for the importing country, and for the world as a whole? We will examine these effects for small and large exporting countries.

Let's Explore: Export Subsidies

Before continuing this section, watch this video, which provides a brief overview of dumping and countervailing duties.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=470#oembed-1

Source: B2Bwhiteboard. (2023, September 23). *Export Subsidies: Explained* [Video]. YouTube. https://www.youtube.com/watch?v=_F699xZY6-M

The Effects of an Export Subsidy for a Small Country

In **Figure 7.3**, we analyze the economic effects of an export subsidy in the case of a small exporting country. Recall that a small country has no influence over the world price of the product. Prior to any engagement in international trade, the product price in the domestic market is given by the intersection of the supply and demand curves. The small country can export any quantity of the product at the higher world price. Before the government grants the export subsidy, consumers purchase Q_{d0} and domestic producers supply Q_{s0}

at the world price. The difference between the quantity supplied and the quantity demanded, i.e., $Q_{s0} - Q_{d0}$, represents the initial level of exports, X_0.

Once the export subsidy is granted, the price domestic producers receive on export sales rises and is equal to the world price plus the subsidy. While the payment of the subsidy applies only to exports, the price on domestic sales of the product also rises to the world price plus the export subsidy. There is no reason the producers will accept a lower price on domestic sales since they can sell as much of the product as they want at the higher world price. With the domestic price now higher, consumers reduce the quantity they purchase to Q_{d1} while producers expand their output to Q_{s1}. Therefore, the level of exports rise to X_1 or $Q_{s1} - Q_{d1}$.

The export subsidy, therefore, increases output and exports as producers respond to the higher price. Producer surplus increases by the sum of areas a, b, and c, as they sell a larger quantity and the receive a higher price. On the other hand, consumers lose surplus equal to area $a + b$, since they pay a higher price and buy a smaller quantity. The cost of the export subsidy is the subsidy (s) times the quantity of exports, X_1 and is equal to area $b + c + d$.

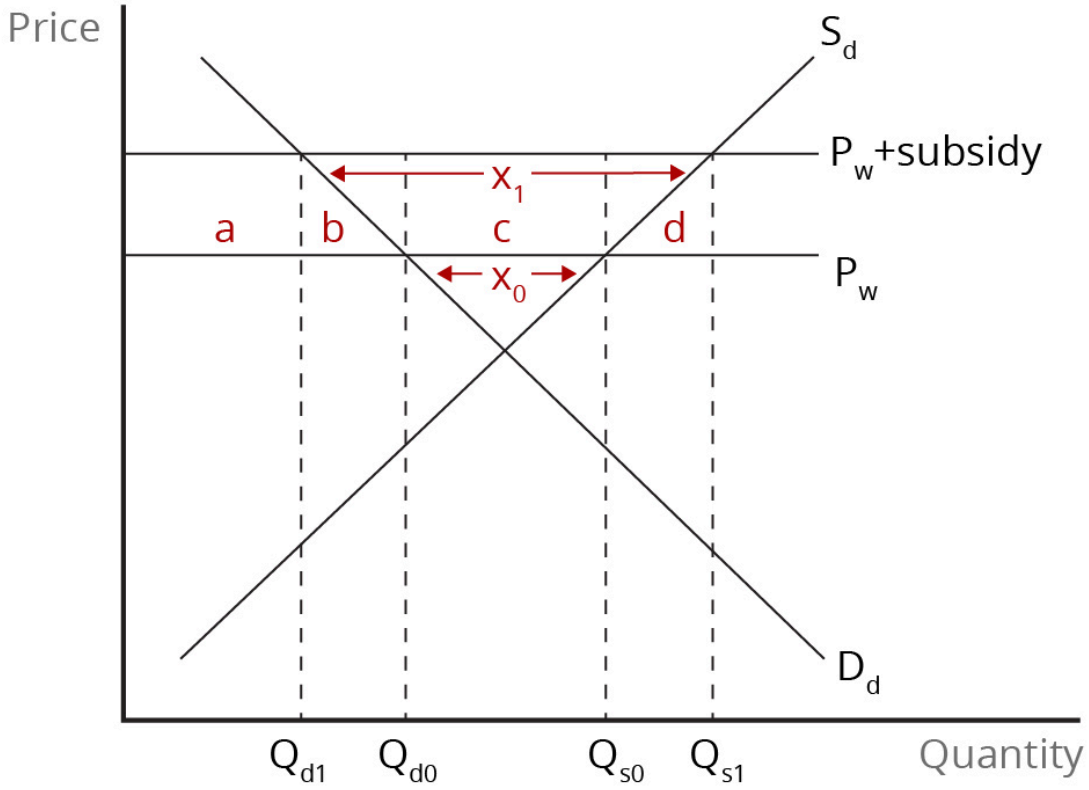

Figure 7.3: The Effects of an Export Subsidy for a Small Exporting Country. *[See image description]*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

We can combine all of these effects – on producers, consumers, and the government budget – to evaluate the economic effects for the country as a whole. This is done in **Table 7.1**.

Table 7.1 Summary of the Economic Effects of an Export Subsidy in a Small Country

Item	Gain/Loss
Producer surplus gain or loss	$+a+b+c$
Consumer surplus gain or loss	$-a-b$
Export subsidy	$-b-c-d$
National economic well-being	$-b-d$

Combining these effects, we see that national economic well-being is reduced as a result of the subsidy, with the net national loss being equal to the sum of areas a and b. Area b is the **consumption effect** of the export subsidy as consumers are squeezed out of the market by the increase in the domestic price. Area d is the **production effect** of the export subsidy which arises because the government has chosen to encourage domestic production that has a resource cost that is higher than the world price. The loss of national economic well-being for our small exporting country is also a loss to the world.

What about the impact of the export subsidy in importing countries?

The Effects of an Export Subsidy for a Large Country

We analyze the economic effects of an export subsidy for a large exporting country in **Figure 7.4.** A large country can influence the world price of the product given its large share of the global market. Prior to any engagement in international trade, the price of the product in the domestic market is given by the intersection of the supply and demand curves. Before the government grants the export subsidy, consumers purchased Q_{d0} and domestic producers supplied Q_{s0} at the world price. The difference between the quantity supplied and the quantity demanded, i.e., $\mathrm{Q}_{s0}-\mathrm{Q}_{d0}$, represents the initial level of exports, X_0.

After the export subsidy is granted, the price that foreign consumers pay for the product falls below the world price. This is because exporters in the large country are wanting to increase exports to get bigger subsidy payments. To entice foreign consumers to buy more of the product, exporters must lower the export price. With the export price falling below the world price, exporters effectively share the subsidy with foreign buyers. The price that domestic consumers pay is equal to the price that foreign buyers pay – the export price – plus the export subsidy.

Given the increase in the domestic price, consumers in the exporting country reduce the quantity they purchase from Q_{d0} to Q_{d1}. Meanwhile, domestic producers increase their output from Q_{s0} to Q_{s1}. Thus, the level of exports increases to X_1, the difference between Q_{s1} and Q_{d1}. Domestic consumers

are worse off due to the export subsidy since they lose surplus equal to the sum of areas a and b. Producers, in contrast, experience a gain in their surplus equal to the sum of areas a, b and c. The surplus that consumers lose is transferred to producers as a gain. The cost of the export subsidy is given by the quantity of exports times the subsidy and is given by the combined area $b+c+d+e+f+g+h+i$.

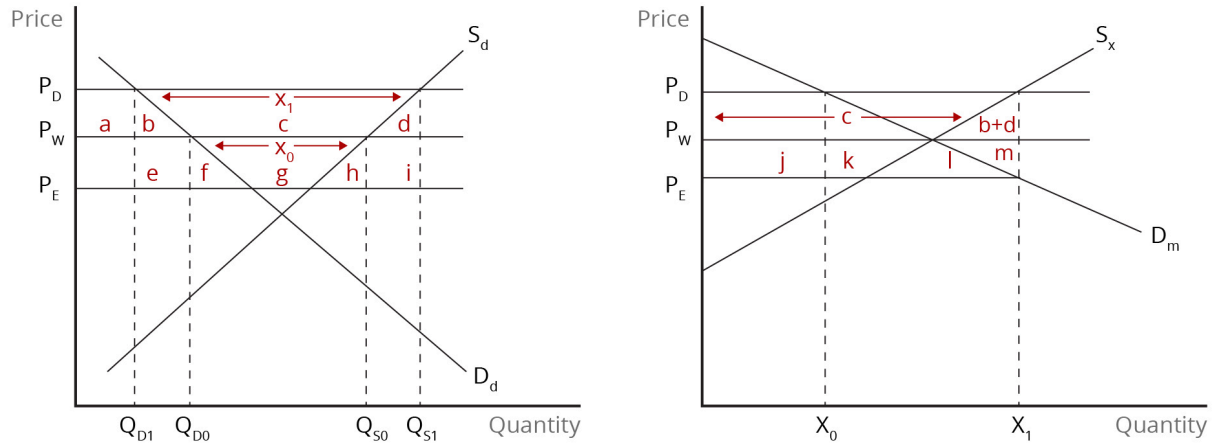

Figure 7.4: The Effect of an Export Subsidy for a Large Exporting Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

We can add up the changes in consumer surplus, producer surplus, and the government budget to evaluate the impact of the export subsidy on the economic well-being of the nation. This is done in **Table 7.2**. We see that national economic well-being is reduced as a result of the export subsidy. Part of the cost of the export subsidy represents a transfer to the producers of the export good and remains within the country. The remainder of the subsidy payment is a benefit to foreign consumers as they pay a lower price and buy a larger quantity.

We can divide the net national loss to the exporting country into three parts – the consumption effect (area b), the production effect (area d), and the loss due to the decline in the country's terms of trade (the combined area $e+f+g+h+i$). In addition, the export subsidy has a negative impact on world well-being. This results from the deadweight losses of the production effect and the consumption effect in the exporting country and the fact that the resource cost of the additional imports was higher that the value that foreign consumers put on them.

Table 7.2 Summary of the Economic Effects of an Export Subsidy in a Large Country

Item	Gain/Loss
Producer surplus gain or loss	$+a+b+c$
Consumer surplus gain or loss	$-a-b$
Export subsidy	$-h-c-d-e-f-g-h-i$
National economic well-being	$-h-d-e-f-g-h-i$

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Image Descriptions

Figure 7.1: An Illustration of International Price Discrimination

The image shows two side-by-side graphs with 'Price' on the vertical axis and 'Quantity' on the horizontal axis.

On the left, the graph labelled 'Domestic Market' includes a downward-sloping demand curve labelled 'D'; from the same origin at the top of the y-axis, the Marginal Revenue curve labelled 'MR' slopes downward to the left of D. A horizontal line one-third up the y-axis is labelled 'MC = AC'. The equilibrium price, P*, and quantity, Q*, on the axes are connected by a dotted horizontal and vertical line that both pass through the MR line to meet the demand curve. A tall, red-shaded rectangle is formed by the y-axis, MC=AC, Q* and P*; the triangle formed to the right of MR passing through the rectangle is labelled Profit.

On the right, the graph labelled 'Foreign Market' includes a downward-sloping demand curve labelled 'D'; from the same origin in the middle of the y-axis, the Marginal Revenue curve labelled 'MR' slopes downward to the left of D. A horizontal line one-third up the y-axis is labelled 'MC = AC'. The equilibrium price, P*, and quantity, Q*, on the axes are connected by a dotted horizontal and vertical line that both pass through the MR line to meet the demand curve. A short, red-shaded rectangle is formed by the y-axis, MC=AC, Q* and P*; the triangle formed to the right of MR passing through the rectangle is labelled Profit.

Rectangle and subsequent Profit triangle in the Foreign Market graph is less than one third the size as in the Domestic Market graph.

[back]

Figure 7.2: The Economic Effects of Dumping in Small Importing Country

The image is a graph with the x-axis labelled "Quantity," and the y-axis labelled "Price." Two intersecting lines form an X in the graph: the downward-sloping line is labelled "D," and the upward-sloping line is labelled "S." A horizontal line below the intersection of supply and demand point is labelled "P_W." Below it, another horizontal

line is labelled "P_d" Four points on the quantity axis are labelled from left to right as "Q_{s1}," "Q_{s0}," "Q_{d0}," and "Q_{d1}." At each intersection of supply, demand, and the price lines are dotted vertical lines down to the points on the quantity axis.

Area a is above the intersection of S and P_d and below P_W. Area b is the triangle formed by S, P_d and Q_{s0}. Area c is the rectangle in the middle formed by Q_{S0}, P_W, Q_{d0} and P_d. Area d mirrors b, formed by Q_{d0}, P_d, and D.

[back]

Figure 7.3: The Effects of an Export Subsidy for a Small Exporting Country

The image is a graph with the x-axis labelled "Quantity" and the y-axis labelled "Price." Two intersecting lines form an X in the graph: the downward-sloping line is labelled "Dd," and the upward-sloping line is labelled "Sd." A horizontal line above the intersection of supply and demand point is labelled "PW." Above it, another horizontal line is labelled "Pw + subsidy." Four points on the quantity axis are labelled from left to right as "Qd1," "Qd0," "Qs0," and "Qs1." At each intersection of supply, demand, and the price lines are dotted vertical lines down to the points on the quantity axis.

Area a is the rectangle formed by the y-axis, P_w, Q_{d1}, and P_w + subsidy. Area b is the triangle formed by Q_{d1}, P_w, and D_d. Area c is the rectangle in the middle formed by Q_{d0}, P_W, Q_{s0} and P_w + subsidy. Area d mirrors b, formed by S_d, P_w, and Q_{s1}.

The triangle formed above the intersection of S_d and D_d and below P_w is marked with a double-sided arrow between S_d and D_d and labelled X_0. Above P_w, a double-sided arrow between S_d and D_d is labelled X_1.

[back]

Figure 7.4: The Effect of an Export Subsidy for a Large Exporting Country

The image shows two side-by-side graphs with 'Price' on the vertical axis and 'Quantity' on the horizontal axis.

On the left graph, two intersecting lines form an X in the graph: the downward-sloping line is labelled "Dd," and the upward-sloping line is labelled "Sd." A horizontal line above the intersection of supply and demand point is labelled "P_E." Above it is another horizontal line is labelled "P_W." Above that is a third horizontal line labelled "P_D"

Four points on the quantity axis are labelled from left to right as "Q_{D1}," "Q_{D0}," "Q_{S0}," and "Q_{S1}." At each intersection of supply, demand, and the price lines are dotted vertical lines down to the points on the quantity axis.

Areas a through d are contained between P_D and P_W. Area a is the square formed by the y-axis, P_D, Q_{D1}, and Pw. Area b is the triangle formed by Q_{D1}, P_W, and D_d. Area c is the trapezoid in the middle formed by D_d, P_W, S_d, and P_D. Area d mirrors b, formed by S_d, P_W, and Q_{s1}.

Areas e through i are contained between P_W and P_E. Area e is the square formed by the Q_{D1}, P_E, Q_{D0}, and P_W. Area f is the triangle formed by Q_{D0}, P_E, and D_d. Area g is the trapezoid formed in the middle by D_d, P_E, S_d, and P_W. Area h mirrors e, formed by S_d, PE, and Qs0. Area i mirrors area e and is a square formed by the Q_{S0}, P_E, Q_{S1}, and PW.

Between S_d and D_d and below P_D is a horizontal double-sided arrow labelled X_1. Between S_d and D_d and below P_W is a horizontal double-sided arrow labelled X_0.

On the right graph, two intersecting lines form an X in the upper half of the graph: the downward-sloping line is labelled "D_m," and the upward-sloping line is labelled "S_X." A horizontal line above the intersection of supply and demand point is labelled "P_D." A horizontal line through the intersection of the supply and demand curves

is labelled "P_W." Below is a third horizontal line labelled "P_E" which does not extend past its intersection with the demand curve.

Two points on the quantity axis are labelled from left to right as "X_0" and "X_1." A horizontal dotted line extends up from X0 to the intersection of P_D and D_M. A horizontal dotted line extends up from X_1 through the intersection of P_E and D_M, ending at the intersection of P_D and S_X.

Area c is formed by the y-axis, P_W, S_X, and P_D and is marked with a double-sided arrow to show its span across the demand curve. Area b+d is the triangle formed right of S_X by P_W and X_1. Area j is the rectangle formed by the y-axis and X_0, between P_E and P_W. Area K is to the right of X_0, in the space between P_E, S_X and PW. Area i is the triangle below the intersection of S_X and D_M formed by P_E. Area m is the triangle formed right of D_M by P_W and X_1.

[back]

7.2 The Effects of Anti-Dumping and Countervailing Duties

As indicated previously, the rules of the **World Trade Organization (WTO)** permit countries to retaliate if dumping is found to materially injure import-competing producers. If both dumping and material injury are found, the government of the importing country is allowed to impose an anti-dumping duty. An anti-dumping duty is an additional tariff that is equal to the difference between the actual export price and the fair market value or the "**dumping margin**."

Let's Explore: Anti-Dumping and Countervailing Duties

Before continuing this section, watch this video, which provides a brief overview of dumping and countervailing duties.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=482#oembed-1

Source: GHY International. (2019, May 23). *Anti-dumping (AD) and countervailing duties (CVD)* [Video]. YouTube. https://www.youtube.com/watch?v=FNz5EqMRqQo

Under anti-dumping law, a case starts with the filing of a complaint by the affected domestic producers. Relevant governmental agencies then examine whether dumping and material injury to domestic producers has occurred. In the United States, the case is filed with the U.S. Department of Commerce (USDC) and the U.S. International Trade Commission (USITC). The USD C checks for dumping and the USITC checks for injury. At any point in the process, producers in the importing country may negotiate with foreign exporters to get them to either raise prices or limit their exports. If agreement is reached between domestic and foreign producers, the case may be terminated or suspended.

If both the USDC and the USITC find dumping and material injury, a permanent tariff is imposed that is equal to the dumping margin (Pugel, 2020; Carbaugh, 2015). A similar process is used in other advanced countries. The evidence for the United States suggests that there is a marked tendency to find dumping as well as injury. In more than 90% of its investigations, the USDC finds dumping and in about two-thirds of its cases, the USITC finds material injury. In the United States and elsewhere, anti-dumping process is biased toward the finding of dumping and injury and the imposition of antidumping duties. A country charged with dumping can appeal to the WTO.

The effects of an anti-dumping duty in a small country are illustrated in **Figure 7.5**. Prior to the occurrence of dumping, domestic consumers purchase D_{d0} at the world price, P_w while domestic producers supply S_{d0}. Since the quantity demanded is greater that the quantity supplied domestically, the difference, $D_{d0} - S_{d0}$, represents the quantity of imports, M_0. With dumping taking place in the domestic market, the price of the imported product falls below the world price. This price is represented by the price line $P_{dumping}$. As a result of the lower price, domestic consumers buy a larger quantity while domestic producers scale back their production. Imports, therefore, increase to X_1, the difference between $D_{d1} - S_{d1}$.

Dumping provides a benefit for consumers in the importing country since they buy a larger quantity and pay a lower price than before. Consumer surplus rises by the combined area $a+b+c+d$. In contrast, domestic producers are hurt by the lower price and the smaller level of production. Producer surplus falls by area a, which is transferred to consumers. Because consumers gain more than producers lose, the country as a whole derives a net gain in economic well-being from dumping.

Suppose domestic producers convince the government that dumping has occurred and is causing material injury. The government imposes an anti-dumping duty equal to the dumping margin, the vertical distance between P_w and $P_{dumping}$. This reverses the previous benefit to consumers as consumer surplus falls by the combined area $a+b+c+d$ as the import price returns to P_w. Domestic producers become more competitive and regain their lost surplus (area b) as the produce more and sell at the higher price. The government collects revenue from the antidumping duty equal to area c. Still, the country as a whole suffers a net national loss equal to area b plus area d. The sources of the national loss are the usual deadweight losses due to the production and consumption effects. Anti-dumping duties usually lower the economic well-being of the importing country and of the world as a whole.

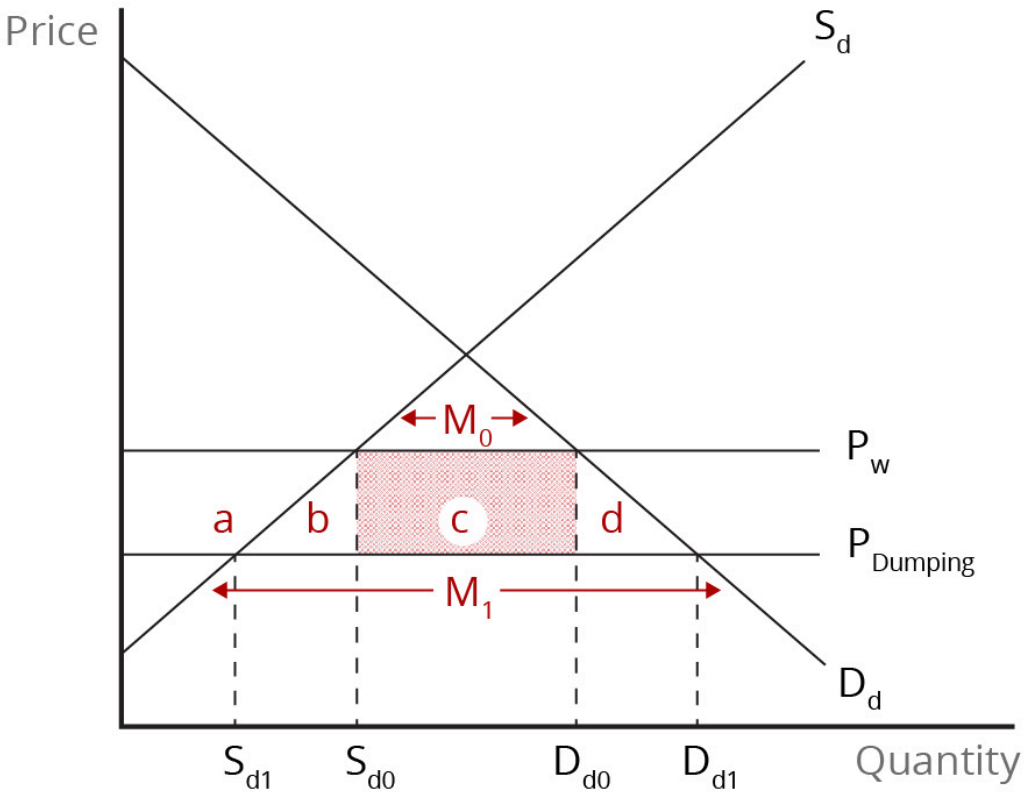

Figure 7.5: The Effects of Anti-Dumping Duty in a Small Importing Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The WTO has rules that allow an importing country to counteract the use of unfair subsidies that encourage exports that hurt its domestic industry. Subsidies that are directly related to exporting are outlawed, except export subsidies used by developing countries with very low incomes. Other subsidies, even though not directly linked to exporting, are actionable if they cause exports to increase notably. If an importing country can demonstrate the existence of a prohibited or actionable subsidy, as well as injury to its domestic producers, it is allowed to impose a countervailing duty. A **countervailing duty** is a tariff that is used to offset the price or cost advantage that the subsidy provides to foreign exports.

We analyze the impact of a countervailing duty using **Figure 7.6.** We assume the large exporting country passes the subsidy fully on to consumers in a small importing country. This causes the export price to fall below the world price, P_w by the amount of the subsidy. The lower export price causes consumers to buy more at the lower price. Consumer surplus increases by the combined area $a+b+c+d$. Meanwhile, producers lose surplus as they receive a lower price and sell a smaller quantity. The country as a whole is better off as the benefit to consumers outweighs the loss of producer surplus. The net national gain is the sum of areas $b+c+d$. However, for the world as a whole, there is too much trade in the product as importing-country consumers value the additional purchases less than their resource cost (indicated by the world price, P_w).

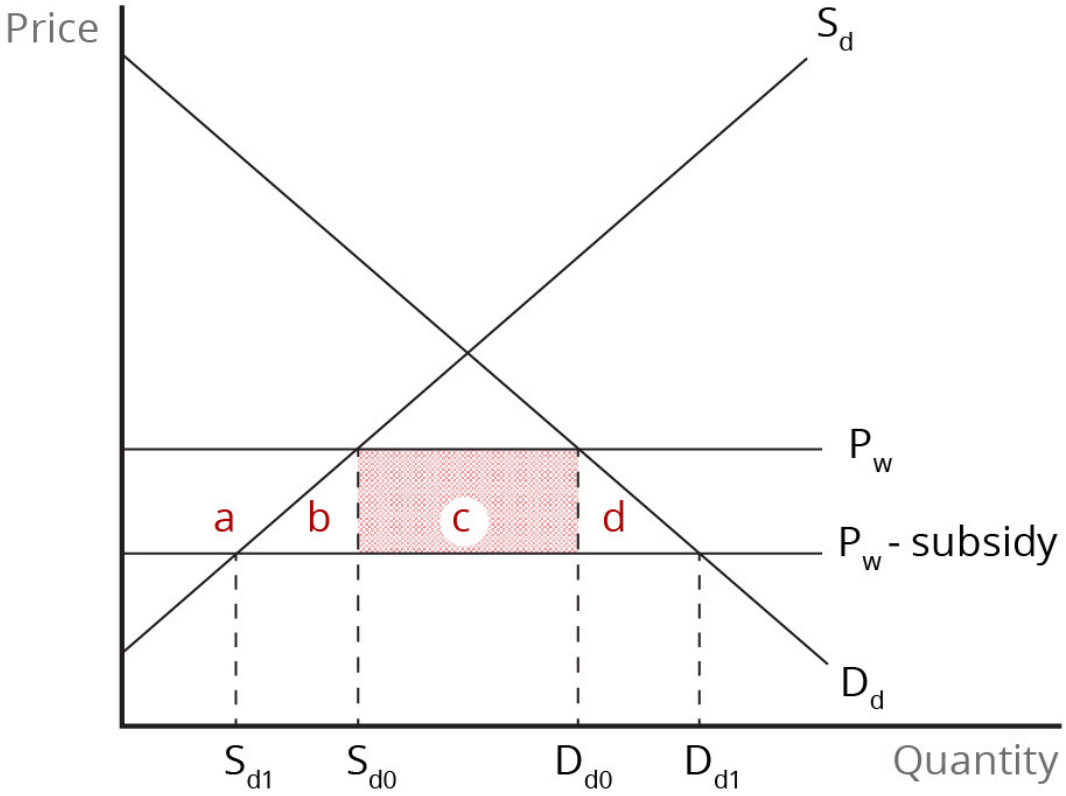

Figure 7.6: The Effects of a Countervailing Duty in Small Importing Country. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

Suppose the importing country imposes a countervailing duty equivalent to the export subsidy. The price in the importing country returns to its level before the export subsidy. Consumer surplus falls back to its pre-subsidy level, domestic producers regain their lost surplus, and the deadweight loss of excessive world trade disappears. Although the government collects tariff revenue equivalent to area C – the level of imports times the tariff – the importing country is worse off when compared to the situation with the export subsidy and no countervailing duty.

Combining all the changes in surplus for consumers $(-a-b-c-d)$, producers $(+a)$, and the government $(+c)$, we see that the net national loss is the sum of area *b* and *d*, the production and consumption effects. The countervailing duty is good for the world as it eliminates inefficient overproduction but bad for the importing country. If we compare the situation of the export subsidy and the countervailing duty with free trade (i.e., the situation before the export subsidy is given), the difference is that the importing country's government now receives revenue from the duty. The exporting country is, in effect, transferring subsidy payments into the coffers of the importing-country government. The well-being of the importing country with the countervailing duty is higher than under free trade.

References

Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.
Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Image Descriptions

Figure 7.5: The Effects of Anti-Dumping Duty in a Small Importing Country

The image is a graph with the x-axis labelled “Quantity” and the y-axis labelled “Price.” Two intersecting lines form an X in the graph: the downward-sloping line is labelled “D_d,” and the upward-sloping line is labelled “S_d.” A horizontal line below the intersection of supply and demand point is labelled “P_W” Below it, another horizontal line is labelled “$P_{Dumping}$” Four points on the quantity axis are labelled from left to right as “S_{d1}” “S_{d0},” “D_{d0},” and “D_{d1}” At each intersection of supply, demand, and the price lines are dotted vertical lines down to the points on the quantity axis.

Area a is above the intersection of S and $P_{Dumping}$and below P_W. Area b is the triangle formed by S, $P_{Dumping}$ and S_{d0}. Area c is a shaded rectangle in the middle formed by S_{d0}, P_W, D_{d0} and $P_{Dumping}$. Area d mirrors b, formed by D_{d0}, P_d, and D_d.

Between Sd and Dd and above P_W is a horizontal double-sided arrow labelled M_0. Between Sd and Dd and below $P_{Dumping}$ is a horizontal double-sided arrow labelled M_1.

[back]

Figure 7.6: The Effects of a Countervailing Duty in Small Importing Country

The image is a graph with the x-axis labelled “Quantity” and the y-axis labelled “Price.” Two intersecting lines form an X in the graph: the downward-sloping line is labelled “D_d,” and the upward-sloping line is labelled “S_d.” A horizontal line below the intersection of supply and demand point is labelled “P_W” Below it, another horizontal line is labelled “P_W – subsidy” Four points on the quantity axis are labelled from left to right as “S_{d1}” “S_{d0},” “D_{d0},” and “D_{d1}” At each intersection of supply, demand, and the price lines are dotted vertical lines down to the points on the quantity axis.

Area a is above the intersection of S and P_W – subsidy and below P_W. Area b is the triangle formed by S, P_W – subsidy and Sd0. Area c is a shaded rectangle in the middle formed by S_{d0}, P_W, D_{d0} and P_W – subsidy. Area d mirrors b, formed by D_{d0}, P_d, and D_d.

[back]

7.3 Dumping, Export Subsidies, and International Trade Disputes

Dumping and export subsidies often provoke international trade disputes. Both are considered unfair trading practices, which are used to gain an advantage in the domestic market of the importing country. Dumping is often done by private firms with tacit agreement of their national governments, while export subsidies involve direct intervention in markets. To the extent that governments are involved, this is seen by importing countries as tilting the international playing field in favour of exporting country-producers. This can cause significant material injury to domestic producers in importing countries.

As seen before, both dumping and export subsidies bring benefits to importing countries, particularly to their consumers. However, they can disrupt production in importing countries and cause material injury to domestic firms as they lose market share. Domestic firms are often successful in lobbying their governments for protection. As a result, importing-country governments often respond with additional import duties intended to remove the advantage that foreign firms have in the domestic market. Anti-dumping and countervailing duties, although legitimate under WTO rules, can prompt retaliation by the exporting countries. Such tit-for-tat actions in which the respective governments favour their domestic industries can trigger trade wars. Recognizing this potential, a procedure for settling international trade disputes is included in the rules of the WTO.

7.4 The WTO Dispute Settlement Process

Exporting countries that are assessed anti-dumping and countervailing duties can appeal the decisions of importing countries under WTO rules. The WTO's procedure for settling trade disputes between countries involves four steps, namely, consultation, adjudication, implementation of the ruling, and (optional) appeal. The consultation stage involves discussions between the countries involved in the dispute with the objective of settling the dispute through mediation by the WTO. If a resolution is not achieved as a result of discussions between the two countries, the process moves to adjudication. At this stage, an independent panel of experts is set up to examine the case and recommend a solution for consideration by the countries. If the countries accept the decision of the panel, the process moves to implementation. If the country that is found to be in violation fails to change its policy in keeping with the decision or to provide appropriate compensation, the WTO may allow the country bringing the complaint to retaliate. Actual retaliation may involve high tariffs against a range of the offending country's products, although its occurrence is rare. Some observers contend that allowing countries to retaliate runs counter to the WTO's objective of reducing trade barriers.

7.5 Proposals for Reform of the WTO Rules Related to Dumping

WTO rules allow an importing country can impose anti-dumping duties if dumping and material injury to the domestic industry are found. However, this policy reduces the economic well-being of the importing country and the world. Moreover, anti-dumping policy is heavily used by domestic producers to obtain protection from import competition. It is, therefore, reasonable to consider ways in which resort to the use of anti-dumping duties can be reduced.

Three proposals for reform of the WTO rules relating to dumping are being considered. First, anti-dumping actions may be restricted to situations in which predatory dumping might be taking place. Predatory dumping, because it involves the exercise of monopoly power, is likely to reduce economic well-being in the importing country and in the world most significantly. This proposal focuses on the type of dumping that is most likely to lead to inefficient resource allocation. Persistent dumping provides net benefits to the importing country and allows for less inefficient global resource allocation.

Second, material injury is judged based solely on damages suffered by domestic producers of the imported product. It is more appropriate to consider a wider measure of economic well-being, taking into account the benefits (or losses) received (or incurred) by consumers of the imported product. As seen earlier, consumers in the importing country gain more than producers gain from dumping and the country, as a whole, benefits.

Third, a more active use of safeguard policy can be used instead of anti-dumping policy. Safeguard policy is the use of temporary import restrictions (e.g., extra tariffs, import quotas) when sudden surges in imports cause or threaten to cause injury to domestic producers. The WTO Agreement on Safeguards establishes rules for the application of safeguard measures by member countries. The idea is to give the import-competing industries some time to adjust to growing import competition. With safeguard policy, temporary protection pushes import-competing producers to become more efficient. In the United States, it is common for safeguards to be scaled back during the period for which they were imposed to gradually prepare the domestic industry for heightened competition. In the United States, safeguard policy has not been invoked very often. In 2018, the U.S. government imposed temporary safeguard tariffs on imports of washing machines and solar panels (Pugel, 2020).

References

Pugel, T. A. (2020). *International economics*, (17th ed.). McGraw-Hill.

Chapter 7 Summary

LO 7.1 Economic Effects of Dumping and Export Subsidies

- Two strategies that governments and their domestic producers use to raise foreign sales are dumping and export subsidies, which are unfair trade practices.
- Dumping is selling in foreign markets at prices below fair market value, which is either the price in the producer's domestic market (or in a third-country market) or average total cost of production.
- Different types of dumping are predatory dumping, sporadic dumping, and persistent dumping. In predatory dumping, the foreign firm initially charges a low price but later raises the price after domestic rivals have left the market. Sporadic dumping entails the firm disposing of excess inventories abroad at low prices. Persistent dumping occurs when the firm uses international price discrimination.
- A small importing country benefits from dumping because the gain in consumer surplus is more than sufficient to compensate for the loss suffered by domestic producers.
- An export subsidy is a payment or other financial incentive to producers per unit of exports to encourage them to increase sales abroad.
- While an export subsidy raises the product's price and benefits producers as they expand production and exports, domestic consumers and the nation are worse off due to lower consumption and the cost of the subsidy. This result is true whether the country providing the subsidy is small or large.

LO 7.2 Economic Effects of Anti-Dumping and Countervailing Duties

- The rules of the WTO permit countries to retaliate with anti-dumping duties if dumping is found to materially injure import-competing domestic producers.
- An anti-dumping duty benefits domestic producers in the importing country but hurts consumers, the nation, and the world.
- WTO rules also allow an importing country to counteract unfair subsidies that hurt its domestic producers with countervailing duties.
- Countervailing duties benefit domestic producers in importing countries but hurt consumers and the nation compared with the situation with the export subsidy. However, countervailing duties are good for the world as they eliminate excessive trade and inefficient overproduction.

LO 7.3 How Dumping and Export Subsidies Can Lead to Trade Disputes

- Domestic producers, when faced with dumping and export subsidies, are usually successful in getting their national governments to impose anti-dumping and countervailing duties.
- Anti-dumping and countervailing duties, although legitimate under the rules of the WTO, can lead to retaliation by the exporting countries and can trigger trade wars.
- Recognizing the potential for trade wars, a procedure for resolving international trade disputes

is included in the rules of the WTO.

LO 7.4 The Dispute Settlement Process of the World Trade Organization

- The WTO procedure for resolving trade disputes between countries involves four steps – consultation, adjudication, implementation of the ruling, and appeal.
- If a country that is judged to be in violation fails to change its policy in keeping with the decision or to provide appropriate compensation, the WTO may allow the country bringing the complaint to retaliate.
- Retaliation, usually in the form of high tariffs on a range of the offending country's products, is rare.

LO 7.5 Proposals for Reforming WTO Rules Relating to Dumping

- Proposals for reform of WTO rules related to dumping include the following:
    - First, anti-dumping actions should be restricted to situations where predatory dumping might be taking place.
    - Second, in the determination of material injury, the measure of economic well-being should be broadened to include not just the benefits or losses of producers but also those of consumers and other interest groups.
    - Third, a safeguard policy might be more actively used in place of anti-dumping duties to provide temporary protection from imports that materially injure domestic producers, allowing them some time for adjustment.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=496#h5p-7

References and Attributions

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Carbaugh, R.J. (2015). *International economics*, (15th ed.). Cengage Learning.

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CHAPTER 8: ECONOMIC INTEGRATION, INTERNATIONAL RESOURCE MOVEMENT, AND MULTINATIONAL ENTERPRISES

Chapter 8 Introduction

Learning Objectives

After reading this chapter, you should be able to

1. Compare types of economic integration arrangements.
2. Describe the theory of economic integration, distinguishing trade creation from trade diversion.
3. Identify gains from regional economic integration based on EU and NAFTA/USMCA experience.
4. Examine the effects of international labour migration on sending and receiving countries.
5. Explain the reasons for the existence of multinational enterprises (MNEs).

Think About It!

Video: What Are Trading Blocs?

Before reading this chapter, watch this video outlining the basic concept of a trading bloc.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=509#oembed-1

Source: Two Teachers. (2023, November 24). *What are trading blocs?* [Video]. YouTube. https://www.youtube.com/watch?v=L4PberOpCZ8

Reflection Questions

Before delving into the discussion, we encourage you to reflect on the following questions:

1. Can you think of ways in which Canada benefits from free trade in goods and services with Mexico and the United States under NAFTA and its successor, the USMCA?
2. Can you think of ways in which free trade agreements and other economic integration arrangements can hurt participating countries economically?
3. Do you think that immigration is good for any receiving country, e.g., Canada or the United States?
4. Why do you think that some firms set up business operations abroad, rather than just exporting their goods and services?

Introduction

In this chapter, after describing various types of economic integration arrangements, we examine the theory of economic integration. Economic integration is a discriminatory trade mechanism in that member countries can trade goods and services and, perhaps, productive resources (e.g., capital) freely or at low cost while imposing restrictions on trade from non-member countries. While WTO rules are based on the most-favoured-nation (MFN) principle whereby all countries are treated in the same way (i.e., in a non-discriminatory way), the WTO does permit the formation of trading blocs once they do not involve raising trade barriers against non-member countries.

We will see that the formation of a trading bloc (an economic integration arrangement) can be good from a resource allocation standpoint in that it represents a movement toward freer trade. However, the formation of a trading bloc may not be desirable because it encourages higher-cost production and consumption and inefficient resource allocation. Whether there is an overall economic benefit for participating countries depends on the extent to which new trade is achieved (trade creation) against how much prior trade is lost. That is, the overall economic benefit depends on trade creation versus trade diversion. In addition, trading blocs can foster international friction between member countries and non-member countries, with the potential for international trade wars.

We will then consider the experience with economic integration arrangements in order to identify the practical effects on economic well-being. In particular, we will look at the experience of the European Union and the North American Free Trade Agreement (NAFTA) and its successor, the United States–Mexico–Canada Agreement (USMCA). We will see that there have been static gains or losses from the formation of trading blocs. However, there can be a number of economic benefits

that come over time. These dynamic benefits stem largely from the larger markets available to producers within trading blocs and heightened market competition.

Next, we will examine the economic effects of international labour migration. Much international migration occurs because of economic reasons. Labour moves from one country to another in search of higher wages and better economic opportunity. As with trade in goods and services, we will see that both sending and receiving countries benefit from international migration. However, some groups gain while other groups lose. In the receiving country, workers in receiving countries lose economic well-being as they compete with immigrants for available jobs. Employers, on the other hand, benefit because they are able to expand their workforces and pay lower wages. The receiving country as a whole is better off economically because the benefit that employers get outweighs the losses that native workers experience. In sending countries, immigration lifts wages domestically for non-migrating workers, and the migrants receive higher wages abroad.

In a similar way, physical and the associated financial capital move internationally in search of better returns. This brings benefits to both home and host countries, manifested in higher production levels and greater efficiency. Multinational enterprises are an important representation of the movement of capital internationally. Accordingly, we discuss foreign direct investment and the role played by multinational enterprises in that regard. We also provide some explanation as to why multinational enterprises exist. We close with a discussion of trends in foreign investment (consider limiting this to FDI) into and out of Canada.

8.1 Types of Economic Integration Arrangements

Economic integration occurs when two or more countries engage in trading arrangements and other areas of cooperation. The number of economic integration arrangements or trading blocs, mostly regional, has risen notably from around 70 in 1990 to over 300 today (Carbaugh, 2015). This trend is partly due to the slower pace of trade liberalization occurring under the World Trade Organization. Since they reduce barriers to trade among relatively small s of countries, regional trading arrangements are discriminatory and represent a departure from the most favoured nation (MFN) principle under the WTO. Economic integration arrangements span a spectrum, depending on the extent to which barriers to trade and factor mobility are reduced and other forms of cooperation are involved. The North American Free Trade Agreement (NAFTA) and its successor, the United States-Mexico-Canada Agreement (USMCA), the European Union (EU), and the European Free Trade Agreement (EFTA) are examples of regional trading arrangements. We will now discuss the major types of trading arrangements based on the degree of integration involved.

Free Trade Agreement

In a free trade agreement, participating countries undertake to remove all tariff and non-tariff barriers to trade in goods and services among themselves. However, these countries are free to adopt their own policies with regard to trade with other countries – outside the free trade area (FTA). NAFTA/USMCA is an example of a free trade agreement in that it allows free trade in goods and services among Canada, Mexico and the United States. Each of these countries, however, have different trading policies with other countries. Specifically, there is no common external tariff (CET) on imports into the free trade area. Most regional trading arrangements are free trade agreements (Pugel, 2020). Because of the different external tariffs, free trade agreements usually include "rules of origin." These rules are designed to prevent goods from being imported into FTA member countries with relatively low tariffs and then being shipped to other countries with the FTA.

Customs Union

In a customs union, participating countries agree to remove all tariff and non-tariff barriers among themselves. However, they go a step further and adopt the same set of tariffs – a common external tariff – with respect to other countries. Harmonization of trade policy with respect to other countries strengthens the momentum toward free trade within the trading bloc. Examples of customs unions are Benelux, involving Belgium, the Netherlands, and Luxembourg; MERCOSUR in South America; and the Southern African Customs Union (SACU). An objective of a customs union is increasing economic efficiency within the trading bloc. A customs union avoids the problem of developing complicated rules of origin but introduces the problem of policy coordination. With a customs union, participating countries must agree on tariff rates across many different import industries (Saylor Academy, n.d.).

Common Market

A common market builds on the idea of a customs union. Not only do participating countries engage in free trade in goods and services in a market that is protected by a common external tariff, but they also permit the free movement of factors of production, such as labour and capital, within the trading bloc. A common market, therefore, represents closer economic integration among the member countries than is possible under a free trade agreement or customs union. The European Union became a common market in 1992 (Pugel, 2020; Carbaugh, 2015).

Economic Union

In an economic union, participating countries harmonize economic policies, including monetary and fiscal policies as well as policies toward trade and factor mobility (Carbaugh, 2015; Pugel, 2020). Belgium and Luxembourg have been an economic union since 1921 and the European Union is progressing toward economic union. However, the status of economic union is not easy to attain as it requires nations to give up economic sovereignty. The harmonization of monetary policy will likely involve a Common Central Bank and a single currency. Therefore, by becoming a member of an economic union, a nation will likely give up its ability to adjust the exchange value of its currency.

For a practical example of an economic union, we can look at the United States or Canada, where individual states and provinces are tied together by a common monetary; trade in goods and services is free among the states and provinces; capital and labour can move freely; and the federal government conducts fiscal policy.

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8.2 The Theory of Economic Integration

In this section, we discuss the economic effects of economic integration through trading blocs. Starting with a common level of protection against imports from all other sources, we examine the effects, in terms of gains or losses, of removing barriers to trade among certain countries. Whether a preferential trade arrangement raises the economic well-being of a country depends on the extent to which the trading arrangement causes trade diversion versus trade creation (Saylor Academy, n.d.). The removal of trade barriers among participating countries facilitates an expansion of trade. However, trade is shifted away from lower-cost production to which the common level of import protection applies to higher-cost production from within the trading bloc. Overall, the static effects of participation in a regional trading bloc depend on whether the benefits of trade creation exceed the costs of trade diversion. We will consider this static view first and then consider some dynamic effects that can arise from economic integration arrangements.

Static Effects – Trade Creation and Trade Diversion

We illustrate the static effects of trade creation and trade diversion in **Figure 8.1**. We assume that we are in a world made up of just three countries – Country A, Country B, and Country C. Two of these countries – Country A and Country B – agree to form a customs union, which involves free trade in goods and services among them and a common tariff against imports from Country C. As a result of the formation of the customs union, tariffs that previously existed on trade between Countries A and B are removed although similar tariffs on Country C remain. This highlights the discriminatory impact of the customs union – trade between Countries A and B is favoured compared to trade with Country C.

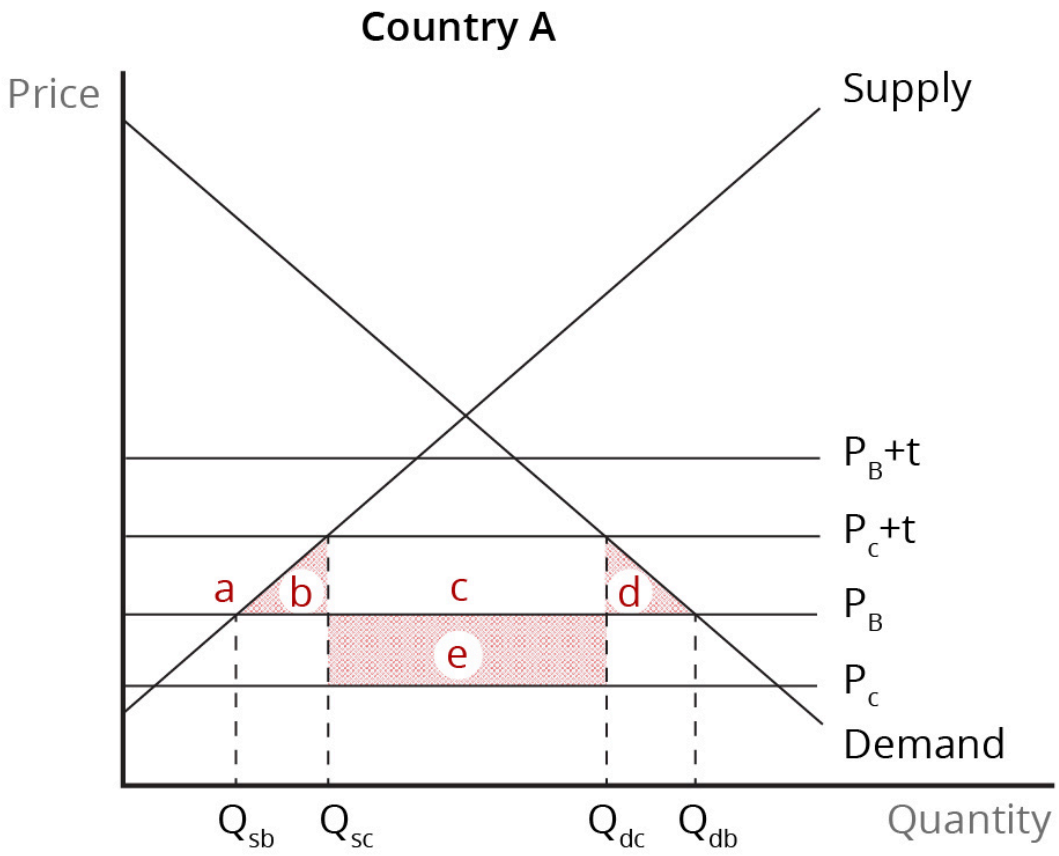

Figure 8.1: The Static Effects of a Customs Union. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

We assume that Country A is a small importer in that it is unable to influence the price of the imported product. The price and supply curves for the alternative producers, Country B and Country C, are therefore represented by horizontal lines in the supply and demand diagram that used to depict the domestic market of Country A. Country B is a relatively high-cost producer of the good under consideration while Country C is the producer with the lowest cost among the three countries.

Prior to the formation of the customs union, both Country B and Country C faced the same import tariff which raised the price to consumers from these two sources in Country A's domestic market. Thus, the domestic price of the product from Country B is given by $\mathrm{P}_b + t$, where $\left(t\right)$ represents the tariff, and the domestic price of the product from Country C is $\mathrm{P}_c + t$. At the lower price of $\mathrm{P}_c + t$, producers in Country A supply Q_{sc} while consumers purchase Q_{dc}, with the difference between these two quantities being imports.

With the formation of the customs union, the tariff is removed on imports from Country B but remains in place for imports from Country C. This means that the price of imports from Country B falls below that of Country C in the domestic market. As a result, the quantity produced in Country A falls to Q_{sb}, as only the

more efficient domestic producers can supply the product. Meanwhile, the quantity purchased rises to Q_{db}. The quantity of imports, therefore, increases. There is clearly an increase in trade as a result of the customs union. This trade creation results because higher-cost production of a member of the customs union (Country A) is replaced by lower cost imports from another member (Country B). This represents an increase in well-being for Country A because consumer surplus rises and there has been an efficiency gain in production. Trade creation is the sum of the production effect (area b) and the consumption effect (area d).

However, the customs union can have an adverse effect on well-being to the extent that it diverts trade from low-cost production. Before the formation of the customs union, Country A bought all its imports from Country C, the low-cost producer. After the formation of the customs union, all imports came from Country B. Trade was therefore diverted from Country C to Country B. Country A is therefore choosing to substitute in consumption higher-cost supplies for lower-cost supplies. This has a negative impact on economic well-being as it represents an inefficient allocation of resources from a global standpoint. The increase in the cost of obtaining the increase in imports is given by area e in **Figure 8.1**.

Whether the formation of the customs union leads to an improvement in economic well-being depends on whether the positive trade creation effect outweighs the negative trade diversion effect; that is, if the sum of area $b + d$ is greater than area e. There are two factors that increase the likelihood that there will be a net gain in economic well-being from a customs union. First, the lower the production costs of the partner's country relative to the most efficient producer, the greater the net gains, because any trade diversion will be less costly. Second, the greater the responsiveness of import demand to a change in price, the greater the net gain as trade creation in response to any decline in the domestic price will be larger.

Dynamic Effects

Some effects of regional trading blocs are dynamic, meaning that they occur over time. These effects arise because the formation of a trading bloc increases the size of a market. Dynamic benefits are likely to outweigh the negative effects of trade diversion and include economies of scale, heightened competition, and greater opportunities for investment.

With the formation of a regional trading bloc, trade barriers in smaller individual markets are removed. This allows producers within the bloc to exploit economies of scale that were formerly unavailable. The increase in market size may facilitate exploitation of comparative advantage, allowing producers to specialize in specific lines of production. The larger market is also likely to encourage increased competition as the number of product versions within the trading bloc is now larger. In order to remain viable in the face of stiffer competition, producers must become more productive, which allows them to reduce costs and cut prices. The movement towards freer trade within the trading bloc also pushes producers to innovate, paving the way for increased investment in research and development, new technologies, and better machinery and equipment.

In summary, we highlight the following major sources of benefit from the formation of trading:

- A reduction in prices and production costs due to economies of scale, increased competition, and innovation;
- Greater product diversity as the number of versions of a product rises; and
- Increased opportunity for investment due to larger market size, greater competition, and the need for

innovation.

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Saylor Academy. (n.d.). *International economics: Theory and policy, (v.1)* [PDF]. The Saylor Foundation. https://resources.saylor.org/wwwresources/archived/site/textbooks/International%20Economics%20-%20Theory%20and%20Policy.pdf

Image Descriptions

Figure 8.1: The Static Effects of a Customs Union

This image is a graph labelled “Country A” with supply and demand curves with “Price” on the vertical axis and “Quantity” on the horizontal axis. The supply curve is upward-sloping, and the demand curve is downward-sloping, intersecting each other, creating an x-shaped formation. The equilibrium is disrupted by four horizontal price lines, with tariffs labelled P_B + t and P_c + t and without tariffs, P_B and P_c. Along the P_B line, areas are labelled with lowercase letters ‘a’ through ‘e.’ Area a is closest to the vertical axis, above the supply line, with a horizontal dotted line to the x-axis labelled Q_{sb}. Area b is a shaded triangle formed by the supply line, line P_B, and a dotted horizontal line from P_B+t to the x-axis labelled Q_{sc}. Area c is the rectangular space from the dotted Q_{sc}, above line P_B and below P_c + T, ending with a horizontal dotted line from the demand line intersection with P_c +T down to the x-axis and labelled Q_{dc}. Area d is shaded and mirrors area b, formed by the demand line, P_B and Q_{dc}. Area e mirrors area c, but below line P_B.

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8.3 Practical Gains from Regional Economic Integration

In this section, we consider the experience of two important geographic regions with economic integration – the formation of regional trading blocs. These regions are the Europe and North America. We will specifically examine the experience of the European Union (EU) and the North American Free Trade Agreement (NAFTA) and its successor, the United States-Mexico-Canada Agreement (USMCA).

The European Union (EU)

Economic integration in Europe began with the Treaty of Rome in 1957, with six countries as members – Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. The EU eventually expanded to include 28 member countries by 2020. However, the United Kingdom formally left the EU at the end of 2020. The EU's current members are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden. Ukraine, Georgia, and Moldova have recently submitted applications for membership.

Since 1957, the EU has increased the degree of economic integration among its members, moving from a free trade area in 1968 to a customs union in 1970, to common market status in 1992, and eventually, to the economic union in 2002, which included a harmonized monetary policy and the euro as a single currency. Not all members of the EU use the euro as their currency. As of 2024, 20 of the EU's 27 members use the euro.

Economic studies of the impact of the European Union on its members have concluded that the net benefits from the formation of the EU were positive but relatively small (Carbaugh, 2015; Pugel, 2020). However, these studies were limited because they considered just the manufacturing sector and only the static economic effects. Given their focus on the manufacturing sector, these studies ignored the likely significant social costs of the Common Agricultural Policy. Moreover, these studies failed to examine the dynamic effects on economic well-being from economies of scale, increased competition, improvements in productivity, increased investment, and greater product diversity.

The specific conclusions of the available studies are the following:

- With regard to the manufacturing sector, the EU has created sufficient trade to lead to small but positive net benefits (Carbaugh, 2015; Pugel, 2020);
- The static benefits from the manufacturing sector were likely not sufficient to offset the losses related to the common agricultural policy, premised on income support policies for farmers and export subsidies;
- Whether the EU has benefited overall from economic integration depends on the size of the dynamic gains from economies of scale, competition, productivity improvements, investment, and product diversity.

Free Trade in North America (NAFTA/USMCA)

The North American Free Trade Agreement (NAFTA), which incorporated the Canada-US Free Trade Agreement (CUSFTA) and extended free trade to include Mexico, came into effect in 1994. NAFTA (and its successor)

removed tariff and non-tariff barriers to trade among the three countries. Besides, the Mexican government got rid of content and export requirements that it had previously imposed on foreign companies operating in Mexico. NAFTA also eliminated barriers to investment in certain service industries, including financial services. However, NAFTA does not permit the free movement of labour among the three countries.

There is general agreement that NAFTA/USMCA has promoted significant increases in the volume of trade in goods and services among the three countries. Some studies have indicated that trade creation exceeded trade diversion, even though trade diversion was reportedly quite large in the case of some products such as textiles (Carbaugh, 2015; Pugel, 2020). As for the European Union, NAFTA/USMCA has likely produced dynamic benefits due to increased competition, economies of scale, investment, productivity improvements, and greater product diversity.

Of the three participating countries, Mexico has likely benefited the most from free trade in North America. Its gains in well-being are reportedly proportionally greater than for the more economically advanced countries of Canada and the United States (Pugel, 2020; Carbaugh, 2015). The removal of trade barriers has led to increased production in industries in which Mexico has a comparative advantage, including certain agricultural products (e.g., sugar, fruits and vegetables, appliances and motor vehicle parts). Mexico also benefited from an influx of investment that has lifted employment and wage rates and promoted technology transfer (Carbaugh, 2015).

Canada's benefit from North American free trade is largely that it has been able to preserve the trading arrangements which it previously had with the United States under the Canada-US Free Trade Agreement and to expand access to the Mexican market (Pugel, 2020). Some observers contend that Canada's gains from trade with Mexico under NAFTA/USMCA have been limited due to the small amount of trade between these two countries. Still, there has been a notable increase in trade in goods and services between Canada and the United States since NAFTA/USMCA has been in effect. There is also evidence of large productivity improvements in Canada as a result of NAFTA/USMCA (Pugel, 2020).

Economic benefits for the United States have been estimated to be limited because of the US economy's large size in comparison to that of Mexico (Carbaugh, 2015; Pugel, 2020). Besides, barriers to trade between Mexico and the United States were substantially reduced before NAFTA was implemented. The effects of NAFTA/USMCA for the U.S. economy include increases in U.S. gross domestic product and increases in trade in goods and services, especially with Mexico. Still, concerns about job losses and the relocation of business operations within the trading bloc have remained notable "bones of contention" in the United States.

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8.4 The Effects of International Migration

In our discussions up to this point we have assumed that factors of production, while mobile in domestic markets, do not move internationally. We are now going to examine the international movement of factors of production, beginning with the movement of labour – **international migration**.

International migration is the movement of people from one country to another in which they plan to live for a relatively long period of time. While international migration has contributed significantly to economic activity in receiving countries, it remains a contentious issue, particularly in the developed world.

In what follows, we will analyze the economic effects of international migration on both sending and receiving countries and then check how our main conclusions compare against actual experience. We presume that international migration is motivated by economic considerations – in everyday language – by a search for better economic opportunity. Assuming that people leave countries where wages are low to go to countries where wages are high, our main conclusions are that receiving countries benefit from the additional supplies of labour while sending countries lose. However, within the two sets of countries, the gains and losses are distributed unevenly. For the world as a whole, international migration brings benefits.

We analyze the economic effects of international migration on the labour market with the help of **Figure 8.2**. We assume two separate labour markets – one in the **sending country** and the other in the **receiving country**. The wage rate is low in the sending country and high in the receiving country. This sets the motivation for international migration – workers in the low-wage country would be interested in moving to the high-wage country to do better economically. In our analysis, we assume that the high-wage country is a developed (rich) country, and the low-wage country is an underdeveloped (poor) country.

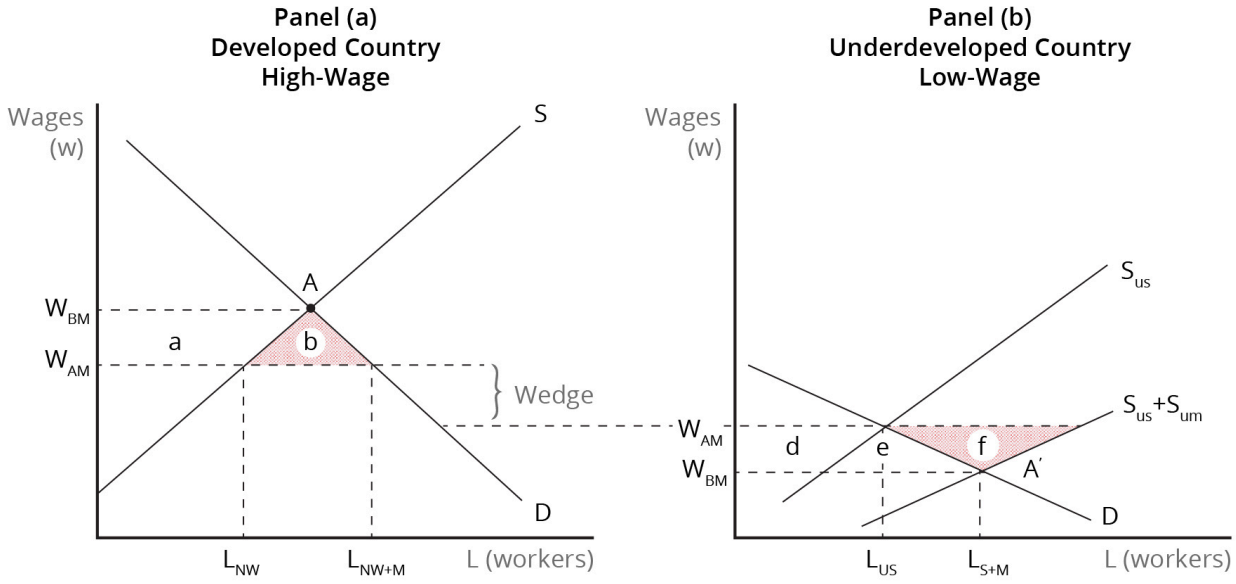

Figure 8.2: The Economic Effects of Migration. *[See image description].*
Credit: *© by Kenrick H. Jordan and Conestoga College, CC BY-NC-SA 4.0.*

The labour market in the developed country is illustrated in **Panel (a)** in **Figure 8.2** using a typical supply and demand diagram. The supply of labour is indicated by S_D, and the demand for labour is given by D_D.

The intersection of the supply and demand curves gives a high wage rate in equilibrium (W_D*) at point A. The labour market in the underdeveloped country is shown in **Panel (b)** in **Figure 8.2** using a similar supply and demand diagram. However, in the case of an underdeveloped country, the supply of labour is segmented to distinguish the workers who are left after migration has taken place. The workers who stay (S_{US}) plus the workers who migrate (S_{UM}) make up the total supply of labour ($S_{US} + S_{UM}$). The intersection of the total labour supply and the demand curve in the underdeveloped country gives a low wage rate in equilibrium (W_U*) at point A'.

Suppose now that the free cross-border movement of labour is allowed to take place. As workers migrate from the underdeveloped country, its wage rate begins to rise. As migrants are added to the workforce in the developed country, its wage rate begins to fall. While there is a tendency for the wage rates in the two countries to equalize, this ultimately will not occur because the transaction costs and risks associated with migration are significant. These factors, therefore, act as a wedge which keeps wage rates in the developed and underdeveloped countries separate.

After migration stops, the workers remaining in the underdeveloped country receive a higher wage, W_{AM}. As a result, there is a fall in the quantity of labour employed from L_{S+M} to L_S. These workers, therefore, gain economic surplus equal to area d. Meanwhile, employers in this country are worse off, as they are hiring less labour and paying a higher wage. They lose economic surplus equal to the sum of areas d and e. Some of what employers in this country lose, area d, is a transfer of surplus to the workers remaining after migration. Since employers lose more than the remaining workers gain, the underdeveloped country definitely loses economic well-being. Its net loss is indicated by area e.

Employers in the developed country experience a gain in economic surplus because they are able to hire more labour at a lower wage rate due to the additional labour supply. Referring to **Figure 8.2**, they gain the sum of areas $a + b$. Meanwhile, native workers – those in the country prior to immigration – see their wage decline and supply a smaller quantity of labour at L_D. As a result, they lose economic surplus equal to area *a*. What workers in this country lose, area a, represents a transfer to employers. Since employers gain more than native workers lose, the developed country receives a net gain in economic well-being indicated by area b.

The receiving country – the developed country – is definitively better off with immigration.

The world benefits from immigration as labour resources are allocated more efficiently. Labour moves from

the country in which it has a relatively low value to the one where its value it has a higher value. Since wage rates reflect labour productivity, the real location of labour resources implies an increase in global output. The is measured by the gain in economic surplus accruing to the migrants, the sum of areas e and f in **Panel (b)** of **Figure 8.2**. Part of what the migrant workers gain, area e, is loss to employers in the underdeveloped country. The world as gains the sum of areas $b + f$.

Empirical studies have shown that the historical experience with migration bears out the conclusions of the above analysis. Immigration tends to reduce the disparity in wages between countries. Workers in receiving countries who are in direct competition with migrants usually experience a decline in their wages relative to other occupations. The earnings of immigrants tend to rise relative to those of native workers over time, but the gap usually does not close during their lifetimes. Last, world output rises as a result of migration.

Let's Explore: Economics of Migration

Learn more about how the migration of people has an affect on modern national economies by watching this video.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=522#oembed-1

Source: CNBC International. (2018, December 22). *How does immigration impact the economy? | CNBC Explains* [Video]. YouTube. https://www.youtube.com/watch?v=f0dVfDiSrFo

Image Descriptions

Figure 8.2: The Economic Effects of Migration.

The image shows two economic graphs side by side labelled Panel (a) Developed Country High Wage and Panel

(b) Underdeveloped Country Low-Wage. Both graphs have an x-axis labelled “L (workers)” and a y-axis marked “Wages (w).”

Panel (a), on the left, has two intersecting lines labelled ‘S’ and ‘D.’ The equilibrium point is denoted by ‘A’ at the centre. The y-axis is marked with W_{BM} and W_{AM}, with dotted horizontal lines extending across, and the x-axis is marked with L_{NW} and L_{NW+M} and dotted horizontal lines running up to the W_{AM} line. The area to the left and above the Supply curve between the W_{BM} and W_{AM} dotted lines is labelled a. The triangle formed by W_{AM} below A and between Supply and Demand is shaded and labelled b. W_{AM} extends beyond the Demand curve to the right, and lower down the Demand curve, an additional horizontal dotted line extends to the right. The space between these extended dotted lines is labelled Wedge.

Panel (b), on the right, has a demand curve beginning lower down the y-axis. Two diagonal supply curves rise partway up the graph, labelled S_{US} and S_{US+SUM}. The intersection of S_{US+SUM} and Demand is labelled A prime. The y-axis is marked with W_{AM} with a horizontal dotted line through where D and S_{US} intersect, which ends at SUS+SUM. Lower on the y-axis is W_{BM} with a horizontal dotted line through S_{US} extending to the intersection of Demand and SUS+SUM. Where the W lines intersect with Demand, vertical horizontal lines go to the x-axis at L_{US} and L_{S+M}. Area d is closest to the y-axis, in the space created by W_{AM}, W_{BM} and S_{US}. Area e is the space below the intersection of Demand and S_{US} and above W_{BM}. Area f is shaded, next to e, and created by demand, W_{AM} and S_{US+SUM}.

[back]

8.5 Multinational Enterprises (MNEs) and Their Effects

The international movement of capital, which is significantly conducted by **multinational enterprises (MNEs)** through **foreign direct investment (FDI)**, is often a contentious issue. This is largely due to the considerable power that these typically large firms have. Governments are often concerned about whether the interests of MNEs are in line with the economic well-being of their countries. Such concerns loom large for developing countries whose control over economic resources is often less than that of MNEs. However, they can also be significant for advanced countries, where inward FDI is often scrutinized before any approval can be given. In the United States, for example, the Committee on Foreign Investment has the power to block or limit FDI in U.S. firms and has, in the past few decades, rejected deals involving Chinese investment.

In this section, we will examine the role played by MNEs in the international movement of capital investment. Specifically, MNEs represent the main channel through which FDI is conducted. Since FDI can flow into or out of any country, we will consider its effects on both the "source" or "home" country and the "host" country, along with its impact on international trade. Before doing so, however, we will describe FDI and MNEs and explore some of the principal reasons for their existence.

Foreign Direct Investment

Foreign direct investment (FDI) is a flow of funding provided by an investor or a lender in order to set up or acquire foreign business operations or to expand or finance an existing foreign business that the investor already owns or controls (Pugel, 2020). The ideas of ownership and control are critical to the meaning of direct investment. The consensus regarding the extent of ownership that allows sufficient influence over the management of the business enterprise is ten (10) percent.

In actuality, a multinational enterprise involves much more than a flow of FDI. This is partly because foreign **subsidiaries** tend to get only a small proportion of their total funding from the MNE. Subsidiaries tend to get substantial amounts of funding from their host countries. This is usually part of the MNE's risk management strategy. Important risks for the MNE are exchange-rate risk and political risk. Exchange-rate risk is the risk that changes in currency value can negatively affect the value of the MNE's direct investment, while political risk stems from changes in host-country policies in ways harmful to the MNE. Both of these risks can be mitigated by borrowing in the **host country**. In addition, MNEs transfer things other than direct investment to their subsidiaries, such as technology, marketing capabilities, and managerial practices.

Multinational Enterprises (MNEs)

A multinational enterprise usually owns and controls business operations in more than one country. In a multinational enterprise, we can distinguish the parent firm from its subsidiaries. The parent firm represents the headquarters of the enterprise and is located in the **home country**. The parent firm usually has one or more subsidiaries located in one or more countries (Carbaugh, 2015; Pugel, 2020.). A multinational enterprise typically has a large quantity of sales in foreign markets relative to its total sales. MNEs may be vertically integrated, horizontally integrated, or conglomerates.

Vertical integration can be forward or backward. Backward integration occurs when the **parent company**

establishes subsidiaries to produce inputs or components used in making the final product. Forward integration occurs when, for instance, the parent company involved in manufacturing sets up subsidiaries abroad to market its product to consumers. Horizontal integration occurs when the parent company engaged in production in the home country replicates its production operations in subsidiaries in other countries. Horizontal integration is often motivated by the need to be close to foreign consumers, high transportation costs, or high levels of import against imports. Last, sometimes firms may diversify their operations into completely different lines of business. An example of **conglomerate integration** is the acquisition of Whole Foods, a grocery chain, by Amazon, a technology company.

Let's Explore: Multinational Corporations and Foreign Direct Investment

Watch this video to learn more about multinational enterprises (or corporations) and foreign direct investment

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=532#oembed-1

Source: Peter Zamborsky. (2022, July 20). *Multinational corporations and foreign direct investment* [Video]. YouTube. https://www.youtube.com/watch?v=0FnDbapIMu0

Reasons for the Existence of MNEs

The basic reason for the movement of capital across national borders is the same as that for international trade. More open economies are likely to experience comparatively high rates of private investment, which is critical to in productivity gains and economic growth. In international trade, products move from countries where their value is low to countries where they are valued highly. In a similar way, capital moves from countries where it experiences lower returns to countries where higher returns are anticipated. When their saturated home markets deliver limited returns, private businesses are likely to be interested in setting up operations in other countries, creating multinational enterprises.

While the quest for returns might prompt the reallocation of capital across countries, it is not enough to explain why investors will be interested in owning and operating foreign business operations. In other words, it is not enough to explain why MNEs develop.

We can distinguish five broad factors that, together, help explain the existence of multinational enterprises. These are as follows:

- inherent disadvantages of being foreign;

- advantages that are specific to the firm;
- considerations related to location;
- internalization advantages; and
- oligopolistic rivalry.

Foreign firms face inherent disadvantages when trying to compete with foreign rivals in their own domestic markets. The foreign firm must face a number of additional costs of managing any business operation at a distance. Not only is it more costly for the foreign firm to operate at a distance, but there is also heightened risk associated with an initial lack of understanding of local customs, laws, practices, and relationships. Other important risks that confront the foreign firm when operating abroad are exchange-rate risk and country risk, which arise when political and economic actions in the foreign country are harmful to the direct investment of the MNE. Thus, there are good reasons why MNEs should not exist.

In order to overcome these disadvantages of operating at a distance, the foreign firm must have some assets and characteristics that are not held by its rivals in the local market. It must possess assets such as proprietary technology, differentiated products, superior management capability, and easy access to financial capital. Such assets provide the foreign firm with a degree of market power that can allow it to offset the disadvantages of being foreign. Even so, the foreign firm must decide whether it is worthwhile to own and manage business operations in another country, as against exporting from its home market or licensing to a rival in the target country.

There are certain considerations that can influence the decision as to whether to locate production abroad or in its domestic market. Such considerations include the availability of productive resources, economies of scale, government policies towards importing and foreign investment (e.g., tariffs, subsidies), the existence of large markets, transportation costs, and the likelihood that products will need to be adapted to cater to local tastes. If resource conditions are favourable, economies of scale are limited, tariff protection is high, the target market is large, transportation costs are high, and local tastes are peculiar, it is more likely that the foreign firm will establish business operations abroad.

Even if the foreign firm rules out exporting as a means of satisfying the target market, it still must decide whether to set up its own business operations using FDI or to license its particular assets to local firms. A license is an agreement for one firm to use assets of another firm in its production, with restrictions on how the assets can be used and with payments for the right to use the assets. While licensing helps the foreign firm avoid the disadvantages of being foreign, there are advantages to the foreign firm of keeping its assets in-house. Such internalization advantages stem from the foreign firm avoiding the costs of finding a suitable licensee (at the right terms) and the risks of losing control of its assets. The establishment of foreign business operations using FDI keeps the firm's assets under its control. With FDI, the foreign firm is better able to maximize the returns from its assets.

Last, multinational enterprises are often large firms that compete aggressively in a global market. Their decisions about where to locate production facilities using FDI is often to prevent rival firms from gaining any significant competitive advantage in the target market. For example, when it was evident that the motor vehicle market in China was set for significant long-term growth, all the major automakers established a presence in the Chinese market in short order.

The Effects of FDI on Home and Host Countries

Outflows of FDI can hurt workers and reduce tax revenues in the home country as production and employment are shifted to other countries. The owners of multinational enterprises gain from outward FDI through higher returns on investment that is available in foreign markets. With outward FDI, the home country forgoes

external benefits such as increased worker skills and efficiency gains associated with the application of new technologies. In practice, advanced countries impose little or no restrictions on outward FDI.

Workers in host countries through the creation of new jobs and the development of new worker skills. In a similar way, other host-country suppliers of inputs also gain. Host-country governments receive a net benefit as long as the tax revenues on the profits of MNE subsidiaries are more than sufficient to cover the cost of any additional government services provided to MNE subsidiaries. FDI can cause local firms in competition with the MNE to lose market share or to go out of business. MNEs may bring external benefits with FDI in the form of better technologies, better managerial capabilities, and improved worker skills. The general view is that host countries gain overall from inward FDI. Supporting this view is the fact that many countries – particularly developing countries – have removed or reduced previous restrictions on inward FDI. Indeed, FDI is being actively encouraged by many developing countries.

The Impact of FDI on International Trade

MNEs are heavily involved in international trade. It is estimated that intra-firm trade represents between a half and two-fifths of the total volume of world trade in goods and services. Sometimes, FDI is a substitute for trade. This might be the case, for instance, when economies of scale are not important, transportation costs are high, or import barriers are high. If economies of scale are limited, it is more likely that the MNE will establish production facilities in different countries than centralize operations in the home country. If transportation costs are high relative to value, the MNE may seek to reduce costs by establishing subsidiaries in other countries. Last, MNEs may choose to locate production behind high tariff walls. Sometimes, FDI is a complement to trade. Production in the foreign country may require the supply of inputs by the MNE. Also, trade in final products made by the MNE may grow because of the presence of subsidiaries in the host country improves the marketing of other products made by the MNE. Most studies conclude that FDI is complementary to international trade.

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Chapter 8 Summary

LO 8.1 Types of Economic Integration Arrangements

- Economic integration arrangements span a spectrum, depending on the extent to which barriers to trade and factor mobility are reduced and other forms of cooperation are involved.
- Major types of economic integration arrangements include free trade agreements, customs unions, common markets, and economic unions.
  In a free trade agreement, participating countries remove barriers to trade among themselves but adopt their own policies with regard to trade with other countries.
- In a customs union, countries remove barriers among themselves and adopt a common external tariff with respect to other countries.
- In a common market, countries engage in free trade in a market protected by a common external tariff, along with the free movement of factors of production (e.g., labour, capital) among themselves.
- In an economic union, countries harmonize economic policies, including monetary and fiscal policies, as well as policies relating to trade and factor mobility.

LO 8.2 The Theory of Economic Integration, Distinguishing Trade Creation from Trade Diversion

- There are static and dynamic effects that arise from participation in a regional trading arrangement. With regard to the static effects, a participating country can experience an improvement in well-being depending on whether the benefits of trade creation exceed the costs of trade diversion.
- The dynamic effects of economic integration arise over time and are the result of heightened competition, economies of scale, increased investment, productivity improvements, and greater product diversity, with the driving factor being the expansion of the market.
- Trade creation occurs because higher-cost production of a member of a customs union is replaced by lower-cost imports from another member. Trade creation raises consumer surplus and produces an efficiency gain in production.
- Trade diversion arises because a country participating in a customs union chooses to consume higher-cost production from within the trading bloc instead of lower-cost production from non-member countries.

LO 8.3 Gains from Regional Economic Integration Such as EU and NAFTA/USMCA

- Two examples of regional trading blocs are the European Union (EU) and NAFTA/USMCA. The EU is further along the road to economic integration, with free trade among participating countries, a common external tariff, free movement of labour and capital, and the harmonization of some economic policies (e.g., monetary policy).
- Studies of the impact of the European Union on member countries indicate that the net benefits from the formation of the EU were positive but relatively small. However, these studies

focused on the manufacturing sector and also considered only the static effects of economic integration.

- There is general agreement that NAFTA/USMCA has promoted significant increases in the volume of trade in goods and services among Canada, Mexico, and the United States. Some studies have indicated that trade creation exceeded trade diversion, producing positive net benefits for the countries involved.
- Economic integration likely produced dynamic effects in both the EU and NAFTA/USMCA, driven by the creation of a larger market.

LO 8.4 Effects of International Labour Migration on Countries

- International migration is the movement of people from one country to another in which they plan to live for a relatively long period of time.
- International migration occurs primarily for economic reasons, with labour moving from countries where it is less productive and receives lower wages to countries where it is more productive and receives higher wages.
- The sending country definitively loses economic well-being as a result of immigration, while the receiving country gains well-being.
- While non-migrating workers in the sending country are better off because of higher wages, their gain is less than the losses incurred by employers. In contrast, employers in the receiving country experience an improvement in their well-being while native workers suffer losses amid a fall in their wages.
- The world benefits from immigration as productivity improves as a result of a reallocation of global labour resources.
  Although there is the initial disparity in wages between sending and receiving countries narrows, the gap is not eliminated because of transaction costs and the risks of immigration.

LO 8.5 Reasons for the Existence of Multinational Enterprises (MNEs)

- The international movement of capital is significantly conducted by multinational enterprises (MNEs) through foreign direct investment and is at least partly motivated by differences in returns (expected profits) across countries.
- Foreign direct investment (FDI) is a flow of funding provided by an investor or a lender to set up or acquire foreign production facilities or to expand or finance an existing foreign business that the investor already owns or controls.
- An MNE owns and controls business operations in more than one country, with a parent firm located in the home country having one or more subsidiaries located in host countries.
- While the search for returns might prompt the reallocation of capital across countries, several other factors help to explain why MNEs develop. These factors include inherent disadvantages of being foreign, certain advantages specific to the firm, considerations related to location, internalization advantages, and oligopolistic rivalry.
- MNEs are heavily involved in international trade, with intra-firm trade estimated to represent between half and two-fifths of the total volume of world trade in goods and services. While FDI can substitute for trade or complement it, studies generally conclude that FDI is complementary to international trade.

Check Your Understanding

An interactive H5P element has been excluded from this version of the text. You can view it online here:
https://ecampusontario.pressbooks.pub/internationaltradefinancepart1/?p=534#h5p-8

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Glossary

absolute advantage

the ability of one supplier to producer a good or service using fewer resources than other suppliers

ad valorem tariff

a tariff expressed as a fixed percentage of the estimated value of an imported product

Adam Smith

an 18th-century Scottish philosopher and author of *The Wealth of Nations*; considered the "father of economics"

anti-dumping duty

a duty that is charged on products that an importing country believes are being dumped in its domestic market

arbitrage

the process of buying a good in one market and selling it in another market (e.g, across borders) to take advantage of price differences

auction

a market process in which a good or service is sold to the highest bidder

balanced growth

when growth results in an increase in output of all products of the same proportion, assuming that relative prices remain constant

biased growth

when growth results in disproportionate increases in the output of different products in the economy, assuming that relative prices remain constant

comparative advantage

the ability of one supplier to produce a good or service at lower opportunity cost than other suppliers

compound tariff

a tariff that is a combination of a specific tariff and an ad valorem tariff

conglomerate integration

the diversification of a business enterprise into unrelated markets

consumer surplus

the extra benefit consumers receive from buying a good or service, measured by what the individuals are willing to pay minus the amount that they actually pay

consumption effect

the loss of economic well-being that occurs due the increase in price and the resulting fall in consumption due to import protection (e.g., tariff)

countervailing duty

a duty that an importing country charges on imported products with the aim of offseting export (or other) subsidies provided by foreign governments

cultural homogenization

the convergence of cultures, where people across different countries become increasingly attached to the same cultural products, usually originating in dominant countries

David Ricardo

a British economist and member of Parliament in the late 18th and early 19th centuries

deadweight loss

the loss in social surplus that occurs when a market produces an inefficient quantity

demand

the relationship between price and the quantity demanded of a certain good or service, assuming other influences on demand remain constant

domestic content requirement

a good manufactured and sold in a particular country must have a stated minimum proportion of its value produced domestically

dumping

selling internationally traded goods below their cost of production

dumping margin

the difference between the actual price charged by the exporting firm and the fair-market or normal value

dying industry

an industry in which production, employment, and market share are persistently declining due to competition from imports or technological change

economic growth

an increase in the productive cabilities of an economy

economic model

a simplified representation of the economic world (i.e., of economic reality)

economies of scale

the reduction in the long-run average cost of production that occurs as total output increases

effective tariff rate

measures the percentage increase in domestic production activities (i.e., value-added) that import tariffs make possible, compared with free trade

elasticity

measures responsiveness of one economic variable to changes in another economic variable

exchange rate

the price of one currency in terms of another currency

export subsidy

a per unit payment to domestic producers to encourage export sales

external benefits

beneficial spillovers to a third party of parties, who did not purchase the good or service that provided the externalities

external costs

costs to people who were not party to a private market transaction

external economies of scale

the situation in which the long-run average cost of the firms decline as the output of the industry increases

factor-price equalization theorem

the tendency for free trade to cause the prices of individual facors of production to equalize across countries

fair market value

price paid by consumers in the home market or by comparable buyers in other foreign markets

first-best world

the situation in which private incentives are in full alignment with the benefits and costs to society as a whole

foreign direct investment

purchasing more than ten percent of a firm or starting a new enterprise in another country

General Agreement on Tariffs and Trade (GATT)

forum in which nations could come together to negotiate reductions in tariffs and other barriers to trade; the precursor to the World Trade Organization

globalization

the trend in which buying and selling in markets have increasingly crossed national borders, especially by large companies engaging in business in multiple countries

gross domestic product (GDP)

measure of the size of total production of goods and services in an economy in a single year

Heckscher-Ohlin theory

states that the basis for international trade are differences in relative endowments of factors among countries

home country

the headquarters of the parent company of a multinational enterprise

horizontal integration

when a parent company manufacturing a product in its home country establishes a subsidiary to produce the same product in a host country

host country

country in which foreign subsidiaries of the parent company are located

hypothesis

a theory about how key variables relate to each other

immiserizing growth

this reflects the possibility that growth that expands a country's willingness-to-trade can lead to decline in the country's terms of trade large enough to make the country worse off economically

imperfect competition

this describes a market where the assumptions of perfect competition — many buyers and sellers, identical products, readily available information, and ease of entry and exit for firms — do not hold; in imperfect competition, firms set prices, may sell differentiated products, and barriers to entry and exit may exist

import licence

a government permit to import foreign goods within specified legal limits (e.g., import quota)

import quota

numerical limits on the quantity of products that a country can import

income effect

when the demand for a good changes with an increase or decrease in consumers' income

increasing marginal opportunity cost

the tendency for the cost of a resource used in production to rise with increased output

indifference curve

a graph that shows combinations of different goods among which a consumer is indifferent, i.e., that gives the same level of satisfaction to a consumer

infant industry

a new industry to which government provides temporary protection until it can produce at costs low enough to compete internationally

inflation

a general and ongoing rise in price levels in an economy

inflation rate

annual rate of increase of the consumer price index (CPI)

inter-industry trade

trade between countries whereby a country exports one type of products and imports a very different type of product

interest rates

the “price” of borrowing in the financial market; a rate of return on an investment

internal economies of scale

when the long-run average cost of the firm declines as the output of the firm increases

internalization advantages

advantages of using a resource within the business instead of contracting with other firms to buy, lease, or license the resource

international migration

the movement of people from one country to another country where they plan to live for a relatively long period of time

International Monetary Fund (IMF)

an international organization that promotes global economic growth, financial stability, international trade, and poverty reduction

intra-industry trade

international trade of goods within the same industry

large country

an importing country that has a sufficiently large share of the world market to influence the world price of the product by using tariffs to alter the quantity of imports

Leontief paradox

the situation where, contrary to expectations, exports turn out to be less capital-intensive than imports

location factors

the various advantages or disadvantages of a firm setting up operations in country as against another

marginal cost of production

the increase in the total cost that results from a unit increase in production

market

interaction between potential buyers and sellers; a combination of demand and supply

markets

migration

the movement of labour from one region or country to another region or country where they intend to live for substantial period of time

monopolistic competition

many firms competing to sell similar but differentiated products

multinational enterprise

a firm that owns and operates businesses in more than one country

national security

the collective interests that are considered important in keeping a nation and its citizens safe

nationally optimal quota

import quota that maximizes the positive difference between the gain due to the improvement in the terms of trade and the loss due to the reduction in imports

nationally optimal tariff

a tariff rate that maximizes the difference between the improvement in the terms of trade and the economic loss due to the decrease in import volume due to the imposition of an import tariff by a large importing country

nominal tariff rate

the tariff rate that is published in the tariff schedule of a country

non-tariff barrier

ways a nation can draw up rules, regulations, inspections, and paperwork to make it more costly or difficult to import products

normal goods

a good in which the quantity demanded rises as income rises, and in which quantity demanded falls as income falls

oligopoly

when a few large firms have all or most of the sales in an industry

opportunity cost

the highest value that must be given up when making a particular choice

parent company

controls and operates another (usually smaller) company or subsidiary (in the context of a multinational enterprise)

perfect competition

a market in which there are many buyers and sellers; firms sell identical products; information is readily available; and there are no barriers to the entry or exit of firms

persistent dumping

international price discrimination whereby a producer sells a product at a lower price in foreign markets than in its domestic market

predatory dumping

the situation whereby a producer temporarily reduces the price at which it sells its product abroad to eliminate foreign competitors

price discrimination

selling the same product at different prices in different markets

producer surplus

the extra benefit producers receive from selling a good or service, measured by the difference between the price they actually receive and the lowest price they are willing to accept

product differentiation

any action that firms do to make consumers think their products are different from their competitors

product life cycle

a predictable cycle in which many manufactured products are initially exported from the country where they were developed and are eventually imported by the country of its innovation

production effect

measures the loss to the domestic economy, and reduction of national well-being, that arises from the subsitution of higher-cost domestic production for more efficient foreign production

production possibilities frontier

a diagram that shows the productively efficient combinations of two products that an economy can produce given the resources it has available

protective tariff

an import tariff imposed with the aim of protecting domestic producers from import competition

quota rent

the difference between the domestic price of the imported product and the world price multiplied by the quantity of imports under the quota

receiving country

the country to which people move and plan to reside for a relatively long period of time (in the context of a multinational enterprise)

resource-using application procedures

procedures to allocate an item that uses up real resources, including first-come, first-served, proof of merit, or negotiation

revenue tariff

a tariff imposed, either on exports or imports, with the aim of generating tax revenue

Rybczynski theorem

growth in a country's endowment of one factor of production, assuming the other factor and product prices remain unchanged, leads to an increase in the production of the good that uses the growing factor intensively and a decline in production of the other good

second-best world

situation in which gaps exist between incentives that influence private decision-making and the benefits and costs to society

sending country

the country that people leave in order to reside in another country (in the context of a multinational enterprise)

small country

a country that imports such a small share of a product that it has no influence on the world price

specialized factor theorem

considers the income distribution effects of trade when factors of production are not mobile across industries in the short run

specific tariff

a tariff expressed in terms of a fixed amount of money per unit of the imported product

sporadic dumping

when a producer gets rid of excess inventories by selling in foreign markets at lower prices than at home

Stolper-Samuelson theorem

any event that changes relative product prices in a country has two effects: it raises the return of the factor used intensively in the industry where price is rising and lowers the return of the factor used intensively in the industry where price is falling

subsidiary

company located in a foreign country that is owned by the parent company of a multinational enterprise

substitution effect

when changes in relative prices lead consumers to substitute a cheaper product for a more expensive one

supply

the relationship between price and the quantity supplied of a certain good or service

tariff

a tax that governments place on imported goods

tariff rate quota

combines an import tariff and a quota, allowing a specified quantity of imports at a low tariff rate (i.e., the within-quota rate) and any imports over that amount to be imported at a higher tariff rate (i.e., the over-quota tariff rate)

tariff revenue argument

holds that import tariffs are a very important source of revenue for governments in developing countries

tariff-equivalent revenue

revenue that is generated by a trade policy other than a tariff that's equal to the revenue generated by a tariff

terms-of-trade effect

the tariff revenue that the importing country gets from foreign suppliers of the imported product in the form of lower supply prices

trade adjustment assistance

provided by goverment to domestic industries, workers, and communities disrupted by import competition

trade balance

gap between the value of exports and the value of imports

trade balances

unemployment

the number of people in the labour force without jobs

variable

a measure (e.g., height, quantity) that can take on different values in different situations or at different times

vertical integration

when the parent company establishes foreign subsidiaries to produce inputs into the production of the final product

voluntary export restraint (VER)

a quantitative limit on exports of a product that's typically imposed at the urging of an importing country's government

World Bank

an international financial institution that provides loans and grants to the governments of low- and middle-income countries for the purpose of pursuing capital projects

World Trade Organization

an international organization that seeks to negotiate reductions in barriers to trade and to adjudicate complaints about violations of international trade policy; successor to the General Agreement on Tariffs and Trade (GATT)