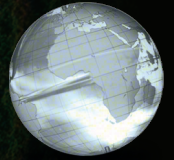


GLOBAL
EDITION



International Trade

Theory and Policy

12th Edition

Paul R. Krugman • Maurice Obstfeld • Marc J. Melitz



International Trade

| THEORY & POLICY |

TWELFTH EDITION

GLOBAL EDITION

Paul R. Krugman

Graduate Center of the City University of New York

Maurice Obstfeld

University of California, Berkeley

Marc J. Melitz

Harvard University



Pearson

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Dubai • Singapore • Hong Kong
Tokyo • Seoul • Taipei • New Delhi • Cape Town • São Paulo • Mexico City • Madrid • Amsterdam • Munich • Paris • Milan

Pearson Education Limited
KAO Two
KAO Park
Hockham Way
Harlow
Essex
CM17 9SR
United Kingdom

and Associated Companies throughout the world

Visit us on the World Wide Web at: www.pearsonglobaleditions.com

© Pearson Education Limited, 2023

The rights of Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz to be identified as the authors of this work have been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

Authorized adaptation from the United States edition, entitled *International Trade: Theory & Policy*, 11th Edition, ISBN 978-0-13-451955-5 by Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz published by Pearson Education © 2018

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without either the prior written permission of the publisher or a license permitting restricted copying in the United Kingdom issued by the Copyright Licensing Agency Ltd, Saffron House, 6–10 Kirby Street, London EC1N 8TS. This publication is protected by copyright, and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise. For information regarding permissions, request forms, and the appropriate contacts within the Pearson Education Global Rights and Permissions department, please visit www.pearsoned.com/permissions/.

Acknowledgments of third-party content appear on the appropriate page within the text.

PEARSON and MYLAB are exclusive trademarks owned by Pearson Education, Inc. or its affiliates in the U.S. and/or other countries.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

This eBook is a standalone product and may or may not include all assets that were part of the print version. It also does not provide access to other Pearson digital products like MyLab and Mastering. The publisher reserves the right to remove any material in this eBook at any time.

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

ISBN 10: 1-292-41723-4

ISBN 13: 978-1-292-41723-3

eBook ISBN 13: 978-1-292-41733-2

Cover Photo: Valentin Valkov/Shutterstock
Typeset in Times NR MT Pro 10/12 by Straive
eBook formatted by B2R Technologies Pvt. Ltd.



Brief Contents

Contents	5
Preface	11
1 Introduction	19
PART 1 International Trade Theory	28
2 World Trade: An Overview	28
3 Labor Productivity and Comparative Advantage: The Ricardian Model	42
4 Specific Factors and Income Distribution	69
5 Resources and Trade: The Heckscher-Ohlin Model	105
6 The Standard Trade Model	141
7 External Economies of Scale and the International Location of Production	169
8 Firms in the Global Economy: Export and Foreign Sourcing Decisions and Multinational Enterprises	188
PART 2 International Trade Policy	234
9 The Instruments of Trade Policy	234
10 The Political Economy of Trade Policy	268
11 Trade Policy in Developing Countries	305
12 Controversies in Trade Policy	319
Mathematical Postscripts	342
Postscript to Chapter 5: The Factor-Proportions Model	342
Postscript to Chapter 6: The Trading World Economy	346
Postscript to Chapter 8: The Monopolistic Competition Model.....	354
Index	360

This page is intentionally left blank



Contents

Preface	11
1 Introduction	19
What Is International Economics About?	21
The Gains from Trade	22
The Pattern of Trade	23
How Much Trade?	23
Balance of Payments	24
Exchange Rate Determination	25
International Policy Coordination	25
The International Capital Market	26
International Economics: Trade and Money	27
PART 1 International Trade Theory	
2 World Trade: An Overview	28
Who Trades with Whom?	28
Size Matters: The Gravity Model	29
Using the Gravity Model: Looking for Anomalies	31
Impediments to Trade: Distance, Barriers, and Borders	32
The Changing Pattern of World Trade	34
Has the World Gotten Smaller?	34
What Do We Trade?	36
Service Offshoring	38
Do Old Rules Still Apply?	39
Summary	40
3 Labor Productivity and Comparative Advantage: The Ricardian Model	42
The Concept of Comparative Advantage	43
A One-Factor Economy	44
Production Possibilities	45
Relative Prices and Supply	46
Trade in a One-Factor World	47
Determining the Relative Price after Trade	48
BOX: Comparative Advantage in Practice: The Case of Usain Bolt	51
The Gains from Trade	52
A Note on Relative Wages	53
BOX: Economic Isolation and Autarky Over Time and Over Space	54
Misconceptions about Comparative Advantage	55
Productivity and Competitiveness	55
BOX: Do Wages Reflect Productivity?	56
The Pauper Labor Argument	57
Exploitation	57
Comparative Advantage with Many Goods	58
Setting Up the Model	58
Relative Wages and Specialization	58
Determining the Relative Wage in the Multigood Model	60

	Adding Transport Costs and Nontraded Goods.....	62
	Empirical Evidence on the Ricardian Model	63
	Summary	65
4	Specific Factors and Income Distribution	69
	The Specific Factors Model	70
	BOX: What is a Specific Factor?	71
	Assumptions of the Model.....	71
	Production Possibilities	72
	Prices, Wages, and Labor Allocation	75
	Relative Prices and the Distribution of Income.....	79
	International Trade in the Specific Factors Model	81
	Income Distribution and the Gains from Trade	82
	The Political Economy of Trade: A Preliminary View	85
	The Politics of Trade Protection.....	86
	Trade and Unemployment.....	87
	CASE STUDY: U.S. Manufacturing Employment and Chinese Import Competition	88
	BOX: The Trump Trade War	90
	International Labor Mobility	91
	CASE STUDY: Wage and Social Benefits Convergence: Migrant Mobility in China	93
	CASE STUDY: Immigration and the U.S. Economy	95
	Summary	97
	APPENDIX TO CHAPTER 4: Further Details on Specific Factors	102
	Marginal and Total Product	102
	Relative Prices and the Distribution of Income.....	103
5	Resources and Trade: The Heckscher-Ohlin Model	105
	Model of a Two-Factor Economy	106
	Prices and Production	106
	Choosing the Mix of Inputs.....	109
	Factor Prices and Goods Prices.....	111
	Resources and Output.....	114
	Effects of International Trade between Two-Factor Economies	115
	Relative Prices and the Pattern of Trade.....	116
	Trade and the Distribution of Income.....	117
	CASE STUDY: North-South Trade and Income Inequality	118
	Skill-Biased Technological Change and Income Inequality	120
	BOX: The Declining Labor Share of Income and Capital-Skill Complementarity	124
	Factor-Price Equalization.....	125
	Empirical Evidence on the Heckscher-Ohlin Model	127
	Trade in Goods as a Substitute for Trade in Factors: Factor Content of Trade	127
	Patterns of Exports between Developed and Developing Countries.....	130
	Implications of the Tests	133
	Summary	133
	APPENDIX TO CHAPTER 5: Factor Prices, Goods Prices, and Production Decisions	137
	Choice of Technique	137
	Goods Prices and Factor Prices.....	138
	More on Resources and Output	139
6	The Standard Trade Model	141
	A Standard Model of a Trading Economy	142
	Production Possibilities and Relative Supply	142
	Relative Prices and Demand.....	143
	The Welfare Effect of Changes in the Terms of Trade.....	146

	BOX: U.S. Consumer Gains from Chinese Imports	147
	Determining Relative Prices	147
	Economic Growth: A Shift of the <i>RS</i> Curve	149
	Growth and the Production Possibility Frontier	149
	World Relative Supply and the Terms of Trade	151
	International Effects of Growth	151
	CASE STUDY: Has the Growth of Newly Industrialized Economies Hurt Advanced Nations?	153
	BOX: The Exposure of Developing Countries to Terms of Trade Shocks and the COVID-19 Pandemic	155
	Tariffs and Export Subsidies: Simultaneous Shifts in <i>RS</i> and <i>RD</i>	155
	Relative Demand and Supply Effects of a Tariff	156
	Effects of an Export Subsidy.....	157
	Implications of Terms of Trade Effects: Who Gains and Who Loses?.....	157
	International Borrowing and Lending	159
	Intertemporal Production Possibilities and Trade.....	159
	The Real Interest Rate	160
	Intertemporal Comparative Advantage	161
	Summary	162
	APPENDIX TO CHAPTER 6: More on Intertemporal Trade	166
7	External Economies of Scale and the International Location of Production	169
	Economies of Scale and International Trade: An Overview	170
	Economies of Scale and Market Structure	171
	The Theory of External Economies	172
	Specialized Suppliers	172
	Labor Market Pooling	173
	Knowledge Spillovers	174
	External Economies and Market Equilibrium	175
	External Economies and International Trade	176
	External Economies, Output, and Prices	176
	External Economies and the Pattern of Trade	177
	Trade and Welfare with External Economies	179
	BOX: Holding the World Together	180
	Dynamic Increasing Returns	181
	Interregional Trade and Economic Geography	182
	BOX: The City and the Street	184
	Summary	185
8	Firms in the Global Economy: Export and Foreign Sourcing Decisions and Multinational Enterprises	188
	The Theory of Imperfect Competition	189
	Monopoly: A Brief Review	190
	Monopolistic Competition	192
	Monopolistic Competition and Trade	197
	The Effects of Increased Market Size	197
	Gains from an Integrated Market: A Numerical Example.....	199
	The Significance of Intra-Industry Trade	202
	CASE STUDY: Automobile Intra-Industry Trade within ASEAN-4: 1998–2002	204
	Firm Responses to Trade: Winners, Losers, and Industry Performance	205
	Performance Differences across Producers	206
	The Effects of Increased Market Size	208
	Trade Costs and Export Decisions	209

Dumping	212
CASE STUDY: Antidumping as Protectionism	213
Multinationals and Foreign Direct Investment	214
Patterns of Foreign Direct Investment Flows around the World	216
CASE STUDY: COVID-19 and Foreign Direct Investment Flows around the World	218
Foreign Direct Investment and Foreign Sourcing Decisions	221
The Horizontal FDI Decision	221
The Foreign Sourcing Decision	222
The Outsourcing Decision: Make or Buy	223
BOX: Whose Trade Is It?	224
CASE STUDY: Shipping Jobs Overseas? Offshoring and Labor Market Outcomes in Germany	225
Consequences of Multinationals and Foreign Outsourcing	227
Summary	228
APPENDIX TO CHAPTER 8: Determining Marginal Revenue	233

PART 2 International Trade Policy

234

9 The Instruments of Trade Policy	234
Basic Tariff Analysis	234
Supply, Demand, and Trade in a Single Industry	235
Effects of a Tariff	237
Measuring the Amount of Protection	238
Costs and Benefits of a Tariff	240
Consumer and Producer Surplus.....	240
Measuring the Costs and Benefits	242
CASE STUDY: Winners and Losers of the Trump Trade War	245
BOX: Tariffs and Retaliation	249
Other Instruments of Trade Policy	250
Export Subsidies: Theory	250
BOX: The Unfriendly Skies: Settling the Longest Running Trade Dispute	251
Import Quotas: Theory	251
CASE STUDY: Tariff-Rate Quota Origin and its Application in Practice with Oilseeds	252
Voluntary Export Restraints.....	256
Local Content Requirements.....	257
BOX: Healthcare Protection with Local Content Requirements	258
Other Trade Policy Instruments.....	259
The Effects of Trade Policy: A Summary	259
Summary	260
APPENDIX TO CHAPTER 9: Tariffs and Import Quotas in the Presence of Monopoly	264
The Model with Free Trade	264
The Model with a Tariff	265
The Model with an Import Quota	266
Comparing a Tariff and a Quota.....	266
10 The Political Economy of Trade Policy	268
The Case for Free Trade	269
Free Trade and Efficiency.....	269
Additional Gains from Free Trade	270
Rent Seeking	271
Political Argument for Free Trade	271

	National Welfare Arguments against Free Trade	272
	The Terms of Trade Argument for a Tariff	272
	The Domestic Market Failure Argument against Free Trade.....	273
	How Convincing Is the Market Failure Argument?	275
	Income Distribution and Trade Policy	276
	Electoral Competition	277
	Collective Action.....	278
	BOX: Politicians for Sale: Evidence from the 1990s	279
	Modeling the Political Process	280
	Who Gets Protected?.....	280
	International Negotiations and Trade Policy	282
	The Advantages of Negotiation	282
	International Trade Agreements: A Brief History	284
	The Uruguay Round	286
	Trade Liberalization	286
	Administrative Reforms: From the GATT to the WTO.....	287
	Benefits and Costs.....	288
	BOX: Settling a Dispute—and Creating One	289
	CASE STUDY: Testing the WTO’s Metal	290
	The End of Trade Agreements?	291
	BOX: Do Agricultural Subsidies Hurt the Third World?	292
	Preferential Trading Agreements	293
	BOX: Free Trade Area Versus Customs Union	295
	BOX: Brexit	296
	CASE STUDY: Trade Diversion in South America	296
	The Trans-Pacific Partnership	297
	Summary	298
	APPENDIX TO CHAPTER 10: Proving That the Optimum Tariff Is Positive	302
	Demand and Supply.....	302
	The Tariff and Prices.....	302
	The Tariff and Domestic Welfare	303
11	Trade Policy in Developing Countries	305
	Import-Substituting Industrialization	306
	The Infant Industry Argument.....	306
	Promoting Manufacturing through Protection	308
	CASE STUDY: Export-Led Strategy	310
	Results of Favoring Manufacturing: Problems of Import-Substituting	
	Industrialization	311
	Trade Liberalization since 1985	312
	Trade and Growth: Takeoff in Asia	314
	BOX: India’s Boom	316
	Summary	317
12	Controversies in Trade Policy	319
	Sophisticated Arguments for Activist Trade Policy	320
	Technology and Externalities	320
	Imperfect Competition and Strategic Trade Policy	323
	BOX: A Warning From Intel’s Founder	325
	CASE STUDY: When the Chips Were Up	326
	Globalization and Low-Wage Labor	328
	The Anti-Globalization Movement	328
	Trade and Wages Revisited	329

Labor Standards and Trade Negotiations.....	331
Environmental and Cultural Issues.....	331
The WTO and National Independence.....	332
CASE STUDY: <i>A Tragedy in Bangladesh</i>	333
Globalization and the Environment	334
Globalization, Growth, and Pollution.....	334
The Problem of “Pollution Havens”.....	336
The Carbon Tariff Dispute.....	337
Trade Shocks and Their Impact on Communities	338
Summary	339
Mathematical Postscripts	342
Postscript to Chapter 5: The Factor-Proportions Model	342
Factor Prices and Costs.....	342
Goods Prices and Factor Prices.....	344
Factor Supplies and Outputs.....	345
Postscript to Chapter 6: The Trading World Economy	346
Supply, Demand, and Equilibrium.....	346
Supply, Demand, and the Stability of Equilibrium.....	348
Effects of Changes in Supply and Demand.....	350
Economic Growth.....	351
A Transfer of Income.....	352
A Tariff.....	353
Postscript to Chapter 8: The Monopolistic Competition Model	354
Merchandise Trade Flows with the United States (in 2018 U.S. dollars)	356
Gross National Product per Capita (in 2019 U.S. dollars)	358
Index	360



Preface

Nothing illustrates better than the COVID-19 pandemic how movements of people, flows of data, and commerce connect our interdependent world. Because pathogens do not respect national borders, the SARS-CoV-2 virus caused a global economic shock and a worldwide downturn, sending governments throughout the world scrambling for policies to stop the spread of the disease while supporting their economies. As this book went to press, the crisis was still underway, with the arrival of several effective vaccines giving hope of a road back to normalcy. Many lessons will be drawn from the recent pandemic experience, but one is the importance of an international perspective for analyzing events of worldwide economic significance and countries' responses. The purpose of this book is to equip students with intellectual tools for understanding the economic implications of global interdependence.

What's New in the Twelfth Edition

We have thoroughly updated the content and extensively revised several chapters. These revisions respond both to users' suggestions and to some important developments on the theoretical and practical sides of international economics. The most far-reaching changes are the following:

- **Chapter 2, World Trade: An Overview** The world attained a high degree of economic interdependence by the eve of World War I over a century ago, but governments retreated behind trade barriers amid the Great Depression of the interwar period. A renewed trend toward economic opening—the “second great globalization”—commenced after World War II. This revised chapter uses new data to provide a better picture of long-term trends in globalization, highlighting how the world reached historically unprecedented levels of economic interconnection only after 1990.
- **Chapter 4, Specific Factors and Income Distribution** Import competition from developing countries—especially from China—is often singled out both in the press and by politicians as the main culprit for declines in manufacturing employment in the United States. This chapter updates our case study on the potential links between these two trends. It also updates our discussion of the politics of restrictions on trade in sugar. A new box introduces our coverage of the restrictive trade policies of the U.S. Trump administration starting in 2017—President Trump's trade war.
- **Chapter 6, The Standard Trade Model** The chapter includes a new case study on the gains to U.S. consumers from Chinese imports. A new box covers the impact of terms of trade shocks on developing countries and in particular the experience during the COVID-19 pandemic.
- **Chapter 7, External Economies of Scale and the International Location of Production** Featured in this revised chapter is a new emphasis on financial centers (notably New York and London), along with discussion of the impacts of Brexit and COVID-19.
- **Chapter 8, Firms in the Global Economy: Export and Foreign Sourcing Decisions, and Multinational Enterprises** Increasingly, the goods we consume are produced in “Global Value Chains” that stretch around the world. The chapter features an extended firm-level trade model that describes how firms make global sourcing decisions. A related new empirical box details the foreign sourcing decisions of U.S. manufacturing firms.

- **Chapter 9, The Instruments of Trade Policy** In the past few years, trade policy has received an inordinate amount of attention with the coverage of the evolving cycle of U.S. trade restrictions and retaliation by its trading partners during the Trump administration. A new case study details the evolution of this trade war and quantifies its impact on U.S. consumers and producers. A new box describes how the long-running dispute between the United States and Europe over export subsidies to Boeing and Airbus was finally resolved. The chapter also features an updated discussion of the new US-Mexico-Canada trade agreement (USMCA) that has replaced NAFTA, with a focus on the implications for North American automobile supply chains.
- **Chapter 10, The Political Economy of Trade Policy** Recent years have seen some significant setbacks to the march toward freer trade. A key arena of trade conflict, likely to continue in future years, has been in free market economies' relations with China. In line with that development, this chapter now includes added focus on U.S.–China trade tensions.
- **Chapter 12, Controversies in Trade Policy** In response to political tensions over the ways in which technological change and trade are affecting trade patterns, regional development within countries, and employment prospects across different labor skill groups, a new focus on the prospects for industrial policies has emerged in both the United States and Europe. This chapter updates our prior discussion of industrial policy by concentrating on R&D-intensive products, where most of the current debate centers.

Solving Learning and Teaching Challenges

The idea of writing this book came out of our experience in teaching international economics to undergraduates and business students since the late 1970s. We perceived two main challenges in teaching. The first was to communicate to students the exciting intellectual advances in this dynamic field. The second was to show how the development of international economic theory has traditionally been shaped by the need to understand the changing world economy and analyze actual problems in international economic policy.

We found that published textbooks did not adequately meet these challenges. Too often, international economics textbooks confront students with a bewildering array of special models and assumptions from which basic lessons are difficult to extract. Because many of these special models are outmoded, students are left puzzled about the real-world relevance of the analysis. As a result, many textbooks often leave a gap between the somewhat antiquated material to be covered in class and the exciting issues that dominate current research and policy debates. That gap has widened dramatically as the importance of international economic problems—and alongside that, enrollment in international economics courses—has grown.

This book is our attempt to provide an up-to-date and understandable analytical framework for illuminating current events and bringing the excitement of international economics into the classroom. In analyzing both the real and monetary sides of the subject, our approach has been to build up, step-by-step, a simple, unified framework for communicating the grand traditional insights as well as the newest findings and approaches. To help the student grasp and retain the underlying logic of international economics, we motivate the theoretical development at each stage by pertinent data and policy questions.

Students assimilate international economics most readily when it is presented as a method of analysis vitally linked to events in the world economy rather than as a body of abstract theorems about abstract models. Our goal has therefore been to stress concepts and their application rather than theoretical formalism. Accordingly, the book does not presuppose an extensive background in economics. Students who have had a course in economic principles will find the book accessible, but students who have taken further courses in microeconomics

or macroeconomics will find an abundant supply of new material. Specialized appendices and mathematical postscripts have been included to challenge the most advanced students.

Our Vision

Years after the global financial crisis of 2008–2009, the world economy is still afflicted by tepid economic growth and, for many people, stagnating incomes. This bleak picture has been accentuated by the economic shock dealt by the COVID-19 pandemic. Extensive attempts by governments to support their economies, while successful in avoiding worst-case scenarios, will leave countries worldwide with legacies of sharply higher public debts, decimated service sectors, and deeply scarred labor forces. Emerging markets remain vulnerable to the ebb and flow of global capital and the ups and downs of world commodity prices. Uncertainty weighs on investment globally, driven not least by worries about the future of the liberal international trade regime built up so painstakingly after World War II.

This twelfth edition therefore comes out at a time when we are more aware than ever before of how events in the global economy influence each country's economic fortunes, policies, and political debates. The world that emerged from World War II was one in which trade, financial, and even communication links between countries were limited. Nearly two decades into the 21st century, however, the picture is very different. Globalization has arrived big-time. International trade in goods and services has expanded steadily over the past six decades thanks to declines in shipping and communication costs, globally negotiated reductions in government trade barriers, the widespread outsourcing of production activities, and a greater awareness of foreign cultures and products. New and better communications technologies, notably the Internet, have revolutionized the way people in all countries obtain and exchange information. International trade in financial assets such as currencies, stocks, and bonds has expanded at a much faster pace even than international product trade. This process brings benefits for owners of wealth but also creates risks of contagious financial instability. Those risks were realized during the recent global financial crisis, which spread quickly across national borders and has played out at huge cost to the world economy. Of all the changes on the international scene in recent decades, however, perhaps the biggest one remains the emergence of China—a development that is already redefining the international balance of economic and political power in the coming century.

Imagine how astonished the generation that lived through the depressed 1930s as adults would have been to see the shape of today's world economy! Nonetheless, the economic concerns that drive international debate have not changed that much from those that dominated the 1930s nor indeed since they were first analyzed by economists more than two centuries ago. What are the merits of free trade among nations compared with protectionism? What causes countries to run trade surpluses or deficits with their trading partners, and how are such imbalances resolved over time? What causes banking and currency crises in open economies, what causes financial contagion between economies, and how should governments handle international financial instability? How can governments avoid unemployment and inflation, what role do exchange rates play in their efforts, and how can countries best cooperate to achieve their economic goals? As always in international economics, the interplay of events and ideas has led to new modes of analysis. In turn, these analytical advances, however abstruse they may seem at first, ultimately do end up playing a major role in governmental policies, in international negotiations, and in people's everyday lives. Globalization has made citizens of all countries much more aware than ever before of the worldwide economic forces that influence their fortunes. Despite some predictions that the recent pandemic may put the brakes on globalization, it seems more likely that most aspects of globalization

will survive once the COVID-19 virus is finally vanquished. As the book illustrates, globalization can be an engine of prosperity, but like any powerful machine, it can do damage if managed unwisely. The challenge for the global community is to get the most out of globalization while coping with the challenges that it raises for economic policy.

To help students explore this complex landscape, this book covers the most important recent developments in international economics without shortchanging the enduring theoretical and historical insights that have traditionally formed the core of the subject. We have achieved this comprehensiveness by stressing how recent theories have evolved from earlier findings in response to an evolving world economy. This book is divided into a core of chapters focused on theory, followed by chapters applying the theory to major policy questions, past and current.

In Chapter 1, we describe in some detail how this book addresses the major themes of international economics. Here we emphasize several of the topics that previous authors failed to treat in a systematic way.

Increasing Returns and Market Structure Even before discussing the role of comparative advantage in promoting international exchange and the associated welfare gains, we visit the forefront of theoretical and empirical research by setting out the gravity model of trade (Chapter 2). We return to the research frontier (in Chapters 7 and 8) by explaining how increasing returns and product differentiation affect trade and welfare. The models explored in this discussion capture significant aspects of reality, such as intraindustry trade and shifts in trade patterns due to dynamic scale economies. The models show, too, that mutually beneficial trade need not be based on comparative advantage.

Firms in International Trade Chapter 8 also summarizes exciting new research focused on the role of firms in international trade. The chapter emphasizes that different firms may fare differently in the face of globalization. The expansion of some and the contraction of others shift overall production toward more efficient producers within industrial sectors, raising overall productivity and thereby generating gains from trade. Those firms that expand in an environment of freer trade may have incentives to outsource some of their production activities abroad or take up multinational production, as we describe in the chapter.

Politics and Theory of Trade Policy Starting in Chapter 4, we stress the effect of trade on income distribution as the key political factor behind restrictions on free trade. This emphasis makes it clear to students why the prescriptions of the standard welfare analysis of trade policy seldom prevail in practice. Chapter 12 explores the popular notion that governments should adopt activist trade policies aimed at encouraging sectors of the economy seen as crucial. The chapter includes a theoretical discussion of such trade policy based on simple ideas from game theory.

Features

This book incorporates a number of special learning features that will maintain students' interest in the presentation and help them master its lessons.

Case Studies Case studies that perform the threefold role of reinforcing material covered earlier, illustrating its applicability in the real world, and providing important historical information often accompany theoretical discussions.

Special Boxes Less central topics that nonetheless offer particularly vivid illustrations of points made in the text are treated in boxes.

Captioned Diagrams The diagrams are accompanied by descriptive captions that reinforce the discussion in the text and help the student in reviewing the material.

Learning Goals A list of essential concepts sets the stage for each chapter in the book. These learning goals help students assess their mastery of the material.

Summary and Key Terms Each chapter closes with a summary recapitulating the major points. Key terms and phrases appear in boldface type when they are introduced in the chapter and are listed at the end of each chapter. To further aid student review of the material, key terms are italicized when they appear in the chapter summary.

Problems Each chapter is followed by problems intended to test and solidify students' comprehension. The problems range from routine computational drills to “big picture” questions suitable for classroom discussion. In many problems we ask students to apply what they have learned to real-world data or policy questions.

Further Readings For instructors who prefer to supplement the textbook with outside readings and for students who wish to probe more deeply on their own, each chapter has an annotated bibliography that includes established classics as well as up-to-date examinations of recent issues.

Supplementary Resources A full range of additional supplementary materials to support teaching and learning accompanies this book.

- The Online Instructor's Manual—updated by Hisham Foad of San Diego State University and K. Michael Casey of University of Central Arkansas—includes chapter overviews and answers to end-of-chapter problems.
- The Online Test Bank offers a rich array of multiple-choice and essay questions, including some mathematical and graphing problems, for each textbook chapter. It is available in Word, PDF, and TestGen formats. This Test Bank was carefully revised and updated by Van Pham of Salem State University. Rafael Alfena Zago from the University of Oklahoma performed accuracy review of the Test Bank.
- The Accessible Online PowerPoint Presentation was updated by Amy Glass of Texas A&M University. This resource contains text figures and tables and can be used for in-class presentations.

For more information and resources, visit www.pearsonglobaleditions.com.

Acknowledgments

Our primary debt is to Thomas Hayward, the Pearson Content Analyst responsible for the project. We also are grateful to the Pearson Content Producer, Shweta Jain, and the Pearson Managing Producer, Alison Kalil. Kelly Murphy's efforts as Project Manager with Straive were essential and efficient. We would also like to thank the digital product team at Pearson—Noel Lotz, Courtney Kamauf, and Melissa Honig—for all their hard work on the MyLab course for the twelfth edition. Last, we thank the other editors who helped make the earlier eleven editions of this book as good as they were.

We also wish to acknowledge the sterling research assistance of Lydia Cox, Joan Jennifer Martinez, and Jianlin Wang. We thank the following reviewers, past and present, for their recommendations and insights:

- | | |
|--|---|
| Jaleel Ahmad, <i>Concordia University</i> | <i>San Marcos</i> |
| Lian An, <i>University of North Florida</i> | Neil Gilfedder, <i>Stanford University</i> |
| Anthony Paul Andrews, <i>Governors State University</i> | Mark Gius, <i>Quinnipiac University</i> |
| Myrvin Anthony, <i>University of Strathclyde, U.K.</i> | Amy Glass, <i>Texas A&M University</i> |
| Michael Arghyrou, <i>Cardiff University</i> | Patrick Gormely, <i>Kansas State University</i> |
| Richard Ault, <i>Auburn University</i> | Thomas Grennes, <i>North Carolina State University</i> |
| Amitrajeet Batabyal, <i>Rochester Institute of Technology</i> | Bodil Olai Hansen, <i>Copenhagen Business School</i> |
| Tibor Besedes, <i>Georgia Tech</i> | Michael Hoffman, <i>U.S. Government Accountability Office</i> |
| George H. Borts, <i>Brown University</i> | Henk Jager, <i>University of Amsterdam</i> |
| Robert F. Brooker, <i>Gannon University</i> | Arvind Jaggi, <i>Franklin & Marshall College</i> |
| Francisco Carrada-Bravo, <i>W.P. Carey School of Business, ASU</i> | Mark Jelavich, <i>Northwest Missouri State University</i> |
| Debajyoti Chakrabarty, <i>University of Sydney</i> | Philip R. Jones, <i>University of Bath and University of Bristol, U.K.</i> |
| Adhip Chaudhuri, <i>Georgetown University</i> | Tsvetanka Karagyozeva, <i>Lawrence University</i> |
| Jay Pil Choi, <i>Michigan State University</i> | Hugh Kelley, <i>Indiana University</i> |
| Jaiho Chung, <i>National University of Singapore</i> | Michael Kevane, <i>Santa Clara University</i> |
| Jonathan Conning, <i>Hunter College and The Graduate Center, The City University of New York</i> | Maureen Kilkenny, <i>University of Nevada</i> |
| Brian Copeland, <i>University of British Columbia</i> | Hyeongwoo Kim, <i>Auburn University</i> |
| Kevin Cotter, <i>Wayne State University</i> | Stephen A. King, <i>San Diego State University, Imperial Valley</i> |
| Barbara Craig, <i>Oberlin College</i> | Faik Koray, <i>Louisiana State University</i> |
| Susan Dadres, <i>University of North Texas</i> | Corinne Krupp, <i>Duke University</i> |
| Ronald B. Davies, <i>University College Dublin</i> | Bun Song Lee, <i>University of Nebraska, Omaha</i> |
| Ann Davis, <i>Marist College</i> | Daniel Lee, <i>Shippensburg University</i> |
| Gopal C. Dorai, <i>William Paterson University</i> | Francis A. Lees, <i>St. Johns University</i> |
| Robert Driskill, <i>Vanderbilt University</i> | Jamus Jerome Lim, <i>World Bank Group</i> |
| Gerald Epstein, <i>University of Massachusetts at Amherst</i> | Rodney Ludema, <i>Georgetown University</i> |
| JoAnne Feeney, <i>State University of New York at Albany</i> | A. G. Malliaris, <i>Quinlan School of Business, Loyola University Chicago</i> |
| Robert Foster, <i>American Graduate School of International Management</i> | Stephen V. Marks, <i>Pomona College</i> |
| Patrice Franko, <i>Colby College</i> | Michael L. McPherson, <i>University of North Texas</i> |
| Diana Fuguitt, <i>Eckerd College</i> | Marcel Mérette, <i>University of Ottawa</i> |
| Byron Gangnes, <i>University of Hawaii at Manoa</i> | Shannon Mitchell, <i>Virginia Commonwealth University</i> |
| Ranjeeta Ghiara, <i>California State University,</i> | Kaz Miyagiwa, <i>Emory University</i> |
| | Shahriar Mostashari, <i>Campbell University</i> |

Shannon Mudd, *Ursinus College*
 Marc-Andreas Muendler, *University of California, San Diego*
 Ton M. Mulder, *Erasmus University, Rotterdam*
 Robert G. Murphy, *Boston College*
 E. Wayne Nafziger, *Kansas State University*
 Steen Nielsen, *University of Aarhus*
 Dmitri Nizovtsev, *Washburn University*
 Terutomo Ozawa, *Colorado State University*
 Arvind Panagariya, *Columbia University*
 Nina Pavcnik, *Dartmouth College*
 Lourenco Paz, *Baylor University*
 Iordanis Petsas, *University of Scranton*
 Van Pham, *Salem State University*
 Gina Pieters, *Trinity University*
 Thitima Puttitanun, *San Diego State University*
 Peter Rangazas, *Indiana University-Purdue University Indianapolis*
 James E. Rauch, *University of California, San Diego*
 Michael Ryan, *Western Michigan University*
 Donald Schilling, *University of Missouri, Columbia*
 Patricia Higinio Schneider, *Mount Holyoke College*
 Ronald M. Schramm, *Columbia University*
 Craig Schulman, *Texas A&M University*
 Yochanan Shachmurove, *University of Pennsylvania*
 Margaret Simpson, *The College of William and Mary*
 Enrico Spolaore, *Tufts University*
 Robert Staiger, *University of Wisconsin-Madison*
 Jeffrey Steagall, *University of North Florida*
 Robert M. Stern, *University of Michigan*
 Abdulhamid Sukar, *Cameron University*
 Rebecca Taylor, *University of Portsmouth, U.K.*
 Scott Taylor, *University of British Columbia*
 Aileen Thompson, *Carleton University*
 Sarah Tinkler, *Portland State University*
 Arja H. Turunen-Red, *University of New Orleans*
 Dick vander Wal, *Free University of Amsterdam*
 Gerald Willmann, *University of Kiel*
 Susan Wolcott, *State University of New York, Binghamton*
 Rossitza Wooster, *California State University, Sacramento*
 Bruce Wydick, *University of San Francisco*
 Jiawen Yang, *The George Washington University*
 Kevin H. Zhang, *Illinois State University*

Although we have not been able to make each and every suggested change, we found reviewers' observations invaluable in revising the book. Obviously, we bear sole responsibility for its remaining shortcomings.

Paul R. Krugman
Maurice Obstfeld
Marc J. Melitz
 September 2021

Global Edition Acknowledgments

We want to thank the following instructors for their work on the Global Edition:

Viktorija Cohen, *Vilnius University, Lithuania*
 Florian Kaulich, *Vienna University of Economics and Business, Austria*
 Archontis Pantsios, *Liverpool Hope University, the United Kingdom*
 Gabriela Sterian, *Romanian-American University, Romania*
 Patrick Terroir, *Sciences Po, France*
 Valentin Cojanu, *The Bucharest Academy of Economic Studies, Romania*
 Michael Graff, *KOF Swiss Economic Institute, Switzerland*
 Kwan Wai KO, *The Chinese University of Hong Kong, Hong Kong*
 Carsten K uchler, *Lucerne School of Business, Switzerland*
 Mario Pezzino, *The University of Manchester, the United Kingdom*
 Natalie Chen, *Warwick University, the United Kingdom*
 Zheng Cao, *Aston University, the United Kingdom*

This page is intentionally left blank



INTRODUCTION

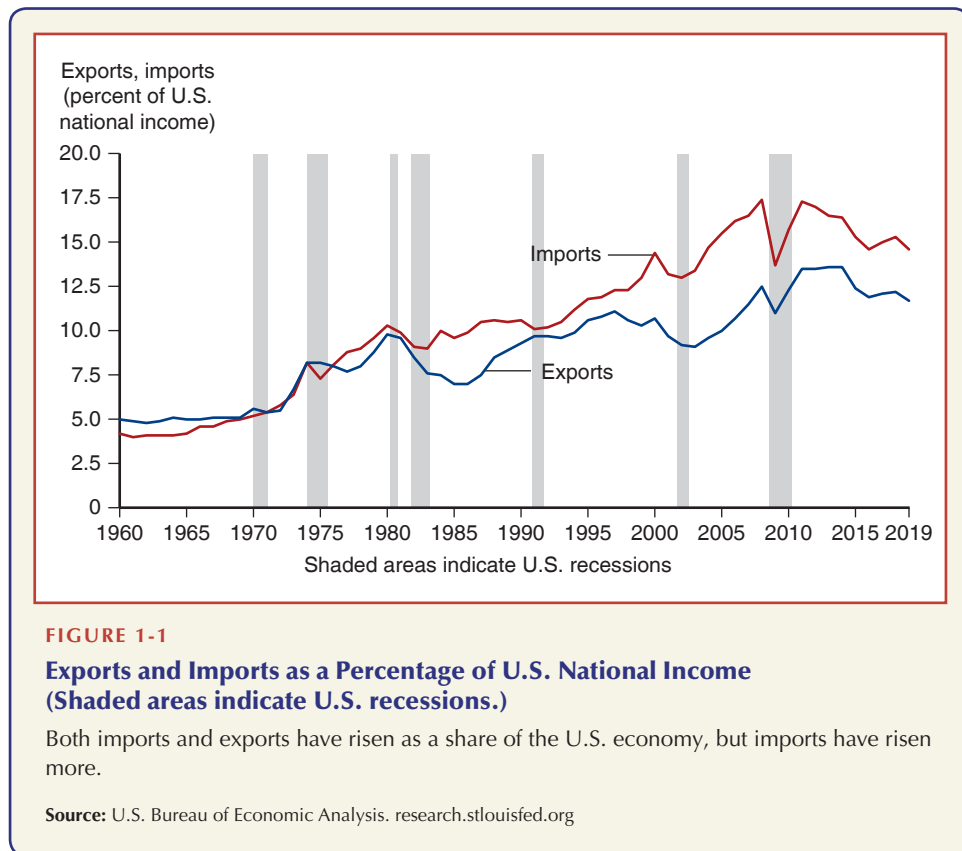
You could say that the study of international trade and finance is where the discipline of economics as we know it began. Historians of economic thought often describe the essay “Of the Balance of Trade” by the Scottish philosopher David Hume as the first real exposition of an economic model. Hume published his essay in 1758, almost 20 years before his friend Adam Smith published *The Wealth of Nations*. And the debates over British trade policy in the early 19th century did much to convert economics from a discursive, informal field to the model-oriented subject it has been ever since.

Yet the study of international economics has never been as important as it is now. In the early 21st century, nations are more closely linked than ever before through trade in goods and services, flows of money, and investment in each other’s economies. And the global economy created by these linkages is a turbulent place: Both policy makers and business leaders in every country must now pay attention to what are sometimes rapidly changing economic fortunes halfway around the world.

A look at some basic trade statistics gives us a sense of the unprecedented importance of international economic relations. Figure 1-1 shows the levels of U.S. exports and imports as shares of gross domestic product from 1960 to 2019. The most obvious feature of the figure is the long-term upward trend in both shares: International trade has roughly tripled in importance compared with the economy as a whole.

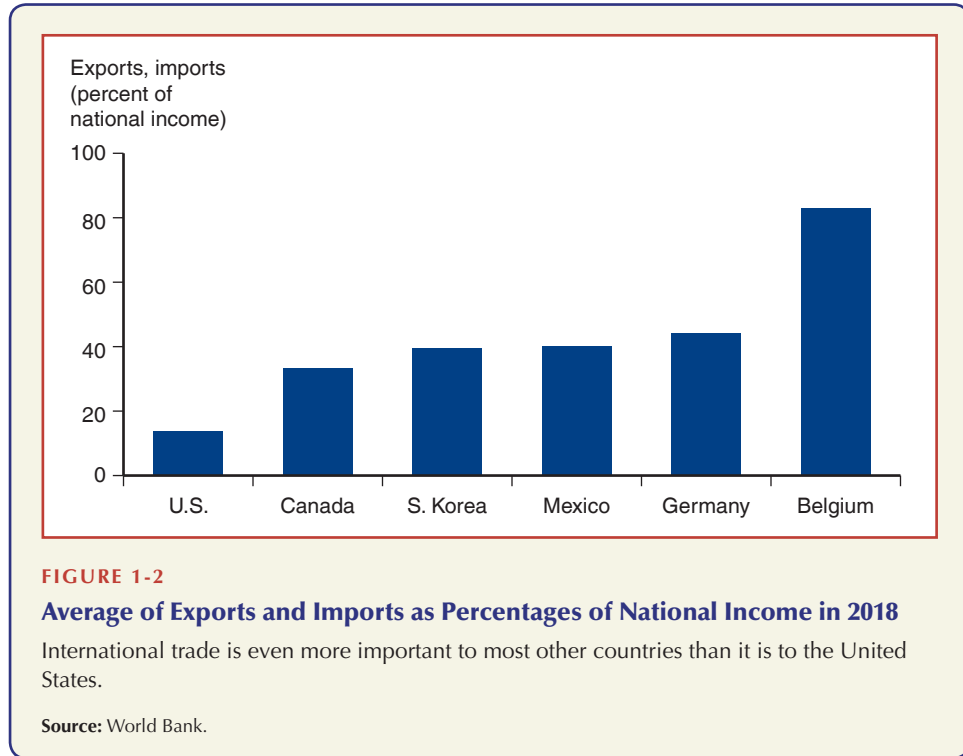
Almost as obvious is that, while both imports and exports have increased, imports have grown more, leading to a large excess of imports over exports. How is the United States able to pay for all those imported goods? The answer is that the money is supplied by large inflows of capital—money invested by foreigners willing to take a stake in the U.S. economy. Inflows of capital on that scale would once have been inconceivable; now they are taken for granted. And so the gap between imports and exports is an indicator of another aspect of growing international linkages—in this case the growing linkages between national capital markets.

Finally, notice that both imports and exports plunged temporarily in 2009, during the global economic crisis that began in 2008; they fell again in 2020, during the COVID-19 pandemic. These declines are reminders of the close links between world trade and the overall state of the world economy.



If international economic relations have become crucial to the United States, they are even more crucial to other nations. Figure 1-2 shows the average of imports and exports as a share of GDP for a sample of countries. The United States, by virtue of its size and the diversity of its resources, relies less on international trade than almost any other country.

This text introduces the main concepts and methods of international economics and illustrates them with applications drawn from the real world. Much of the text is devoted to old ideas that are still as valid as ever: The 19th-century trade theory of David Ricardo and even the 18th-century monetary analysis of David Hume remain highly relevant to the 21st-century world economy. At the same time, we have made a special effort to bring the analysis up to date. In particular, the economic crisis that began in 2007 threw up major new challenges for the global economy. Economists were able to apply existing analyses to some of these challenges, but they were also forced to rethink some important concepts. Furthermore, new approaches have emerged to old questions, such as the impacts of changes in monetary and fiscal policy. We have attempted to convey the key ideas that have emerged in recent research while stressing the continuing usefulness of old ideas.



LEARNING GOALS

After reading this chapter, you will be able to:

- Distinguish between international and domestic economic issues.
- Explain why seven themes recur in international economics and discuss their significance.
- Distinguish between the trade and monetary aspects of international economics.

What Is International Economics About?

International economics uses the same fundamental methods of analysis as other branches of economics because the motives and behavior of individuals are the same in international trade as they are in domestic transactions. Gourmet food shops in Florida sell coffee beans from both Mexico and Hawaii; the sequence of events that brought those beans to the shop is not very different, and the imported beans traveled a much shorter distance than the beans shipped within the United States! Yet international economics involves new and different concerns because international trade and investment occur between independent nations. The United States and Mexico are sovereign states; Florida and Hawaii are not. Mexico's coffee shipments to Florida could be disrupted if the U.S. government imposed a quota that limits imports; Mexican coffee could suddenly become cheaper to U.S. buyers if the peso were to fall in value

against the dollar. By contrast, neither of those events can happen in commerce within the United States because the Constitution forbids restraints on interstate trade and all U.S. states use the same currency.

The subject matter of international economics, then, consists of issues raised by the special problems of economic interaction between sovereign states. Seven themes recur throughout the study of international economics: (1) the gains from trade, (2) the pattern of trade, (3) protectionism, (4) the balance of payments, (5) exchange rate determination, (6) international policy coordination, and (7) the international capital market.

The Gains from Trade

Everybody knows that some international trade is beneficial—for example, nobody thinks that Norway should grow its own oranges. Many people are skeptical, however, about the benefits of trading for goods that a country could produce for itself. Shouldn't Americans buy American goods whenever possible to help create jobs in the United States?

Probably the most important single insight in all of international economics is that there are *gains from trade*—that is, when countries sell goods and services to each other, this exchange is almost always to their mutual benefit. The range of circumstances under which international trade is beneficial is much wider than most people imagine. For example, it is a common misconception that trade is harmful if large disparities exist between countries in productivity or wages. On one side, businesspeople in less technologically advanced countries, such as India, often worry that opening their economies to international trade will lead to disaster because their industries won't be able to compete. On the other side, people in technologically advanced nations where workers earn high wages often fear that trading with less advanced, lower-wage countries will drag their standard of living down—one presidential candidate memorably warned of a “giant sucking sound” if the United States were to conclude a free trade agreement with Mexico.

Yet the first model this text presents of the causes of trade (Chapter 3) demonstrates that two countries can trade to their mutual benefit even when one of them is more efficient than the other at producing everything and when producers in the less-efficient country can compete only by paying lower wages. We'll also see that trade provides benefits by allowing countries to export goods whose production makes relatively heavy use of resources that are locally abundant while importing goods whose production makes heavy use of resources that are locally scarce (Chapter 5). International trade also allows countries to specialize in producing narrower ranges of goods, giving them greater efficiencies of large-scale production.

Nor are the benefits of international trade limited to trade in tangible goods. International migration and international borrowing and lending are also forms of mutually beneficial trade—the first a trade of labor for goods and services (Chapter 4), the second a trade of current goods for the promise of future goods (Chapter 6). Finally, international exchanges of risky assets such as stocks and bonds can benefit all countries by allowing each country to diversify its wealth and reduce the variability of its income. These invisible forms of trade yield gains as real as the trade that puts fresh fruit from Latin America in Toronto markets in February.

Although nations generally gain from international trade, it is quite possible that international trade may hurt particular groups *within* nations—in other words, that international trade will have strong effects on the distribution of income. The effects of

trade on income distribution have long been a concern of international trade theorists who have pointed out that:

International trade can adversely affect the owners of resources that are “specific” to industries that compete with imports, that is, cannot find alternative employment in other industries. Examples would include specialized machinery, such as power looms made less valuable by textile imports, and workers with specialized skills, like fishermen who find the value of their catch reduced by imported seafood.

Trade can also alter the distribution of income between broad groups, such as workers and the owners of capital.

These concerns have moved from the classroom into the center of real-world policy debate as it has become increasingly clear that the real wages of less-skilled workers in the United States have been declining—even though the country as a whole is continuing to grow richer. Many commentators attribute this development to growing international trade, especially the rapidly growing exports of manufactured goods from low-wage countries. Assessing this claim has become an important task for international economists and is a major theme of Chapters 4 through 6.

The Pattern of Trade

Economists cannot discuss the effects of international trade or recommend changes in government policies toward trade with any confidence unless they know their theory is good enough to explain the international trade that is actually observed. As a result, attempts to explain the pattern of international trade—who sells what to whom—have been a major preoccupation of international economists.

Some aspects of the pattern of trade are easy to understand. Climate and resources clearly explain why Brazil exports coffee and Saudi Arabia exports oil. Much of the pattern of trade is more subtle, however. Why does Japan export automobiles while the United States exports aircraft? In the early 19th century, English economist David Ricardo offered an explanation of trade in terms of international differences in labor productivity, an explanation that remains a powerful insight (Chapter 3). In the 20th century, however, alternative explanations also were proposed. One of the most influential explanations links trade patterns to an interaction between the relative supplies of national resources such as capital, labor, and land on one side and the relative use of these factors in the production of different goods on the other. We present this theory in Chapter 5. We then discuss how this basic model must be extended in order to generate accurate empirical predictions for the volume and pattern of trade. Also, some international economists have proposed theories that suggest a substantial random component, along with economies of scale, in the pattern of international trade, theories that are developed in Chapters 7 and 8.

How Much Trade?

If the idea of gains from trade is the most important theoretical concept in international economics, the seemingly eternal debate over how much trade to allow is its most important policy theme. Since the emergence of modern nation-states in the 16th century, governments have worried about the effect of international competition on the prosperity of domestic industries and have tried either to shield industries from foreign competition by placing limits on imports or to help them in world competition by subsidizing exports. The single most consistent mission of international economics has been to analyze the effects of these so-called protectionist policies—and

usually, though not always, to criticize protectionism and show the advantages of freer international trade.

The debate over how much trade to allow took a new direction in the 1990s. After World War II the advanced democracies, led by the United States, pursued a broad policy of removing barriers to international trade; this policy reflected the view that free trade was a force not only for prosperity but also for promoting world peace. In the first half of the 1990s, several major free trade agreements were negotiated. The most notable were the North American Free Trade Agreement (NAFTA) between the United States, Canada, and Mexico, approved in 1993, and the so-called Uruguay Round agreement, which established the World Trade Organization in 1994.

Since then, however, there has been considerable backlash against “globalization.” In 2016, Britain shocked the political establishment by voting to leave the European Union, which guarantees free movement of goods and people among its members. In that same year, claims that competition from imports and unfair trade deals have cost jobs played an important role in the U.S. presidential campaign. One consequence of this anti-globalization backlash is that free trade advocates are under greater pressure than ever before to find ways to explain their views.

As befits both the historical importance and the current relevance of the protectionist issue, roughly a quarter of this text is devoted to this subject. Over the years, international economists have developed a simple yet powerful analytical framework for determining the effects of government policies that affect international trade. This framework helps predict the effects of trade policies, while also allowing for cost-benefit analysis and defining criteria for determining when government intervention is good for the economy. We present this framework in Chapters 9 and 10 and use it to discuss a number of policy issues in those chapters and in Chapters 11 and 12.

In the real world, however, governments do not necessarily do what the cost-benefit analysis of economists tells them they should. This does not mean that analysis is useless. Economic analysis can help make sense of the politics of international trade policy by showing who benefits and who loses from such government actions as quotas on imports and subsidies to exports. The key insight of this analysis is that conflicts of interest *within* nations are usually more important in determining trade policy than conflicts of interest *between* nations. Chapters 4 and 5 show that trade usually has very strong effects on income distribution within countries, whereas Chapters 10 through 12 reveal that the relative power of different interest groups within countries, rather than some measure of overall national interest, is often the main determining factor in government policies toward international trade.

Balance of Payments

In 1998, both China and South Korea ran large trade surpluses of about \$40 billion each. In China’s case, the trade surplus was not out of the ordinary—the country had been running large surpluses for several years, prompting complaints from other countries, including the United States, that China was not playing by the rules. So is it good to run a trade surplus and bad to run a trade deficit? Not according to the South Koreans: Their trade surplus was forced on them by an economic and financial crisis, and they bitterly resented the necessity of running that surplus.

This comparison highlights the fact that a country’s *balance of payments* must be placed in the context of an economic analysis to understand what it means. It emerges in a variety of specific contexts: in discussing foreign direct investment by multinational corporations (Chapter 8), in relating international transactions to national income accounting, and in discussing virtually every aspect of international

monetary policy. Like the problem of protectionism, the balance of payments has become a central issue for the United States because the nation has run huge trade deficits every year since 1982.

Exchange Rate Determination

In September 2010, Brazil's finance minister, Guido Mantegna, made headlines by declaring that the world was "in the midst of an international currency war." The occasion for his remarks was a sharp rise in the value of Brazil's currency, the *real*, which was worth less than 45 cents at the beginning of 2009 but had risen to almost 60 cents when he spoke (and would rise to 65 cents over the next few months). Mantegna accused wealthy countries—the United States in particular—of engineering this rise, which was devastating to Brazilian exporters. However, the surge in the *real* proved short-lived; the currency began dropping in mid-2011, and by the summer of 2013 it was back down to only 45 cents.

A key difference between international economics and other areas of economics is that countries usually have their own currencies—the euro, which is shared by a number of European countries, being the exception that proves the rule. And as the example of the *real* illustrates, the relative values of currencies can change over time, sometimes drastically.

For historical reasons, the study of exchange rate determination is a relatively new part of international economics. For much of modern economic history, exchange rates were fixed by government action rather than determined in the marketplace. Before World War I, the values of the world's major currencies were fixed in terms of gold; for a generation after World War II, the values of most currencies were fixed in terms of the U.S. dollar. The analysis of international monetary systems that fix exchange rates remains an important subject.

International Policy Coordination

The international economy comprises sovereign nations, each free to choose its own economic policies. Unfortunately, in an integrated world economy, one country's economic policies usually affect other countries as well. For example, when Germany's Bundesbank raised interest rates in 1990—a step it took to control the possible inflationary impact of the reunification of West and East Germany—it helped precipitate a recession in the rest of Western Europe. Differences in goals among countries often lead to conflicts of interest. Even when countries have similar goals, they may suffer losses if they fail to coordinate their policies. A fundamental problem in international economics is determining how to produce an acceptable degree of harmony among the international trade and monetary policies of different countries in the absence of a world government that tells countries what to do.

For almost 70 years, international trade policies have been governed by an international agreement known as the General Agreement on Tariffs and Trade (GATT). Since 1994, trade rules have been enforced by an international organization, the World Trade Organization, that can tell countries, including the United States, that their policies

violate prior agreements. We discuss the rationale for this system in Chapter 9 and look at whether the current rules of the game for international trade in the world economy can or should survive.

While cooperation on international trade policies is a well-established tradition, coordination of international macroeconomic policies is a newer and more uncertain topic. Attempts to formulate principles for international macroeconomic coordination date to the 1980s and 1990s and remain controversial to this day. Nonetheless, attempts at international macroeconomic coordination are occurring with growing frequency in the real world.

The International Capital Market

In 2007, investors who had bought U.S. mortgage-backed securities—claims on the income from large pools of home mortgages—received a rude shock: As home prices began to fall, mortgage defaults soared, and investments they had been assured were safe turned out to be highly risky. Since many of these claims were owned by financial institutions, the housing bust soon turned into a banking crisis. And here's the thing: It wasn't just a U.S. banking crisis because banks in other countries, especially in Europe, had also bought many of these securities.

The story didn't end there: Europe soon had its own housing bust. And while the bust mainly took place in southern Europe, it soon became apparent that many northern European banks—such as German banks that had lent money to their Spanish counterparts—were also very exposed to the financial consequences.

In any sophisticated economy, there is an extensive capital market: a set of arrangements by which individuals and firms exchange money now for promises to pay in the future. The growing importance of international trade since the 1960s has been accompanied by a growth in the *international* capital market, which links the capital markets of individual countries. Thus in the 1970s, oil-rich Middle Eastern nations placed their oil revenues in banks in London or New York, and these banks in turn lent money to governments and corporations in Asia and Latin America. During the 1980s, Japan converted much of the money it earned from its booming exports into investments in the United States, including the establishment of a growing number of U.S. subsidiaries of Japanese corporations. Nowadays, China is funneling its own export earnings into a range of foreign assets, including dollars that its government holds as international reserves.

International capital markets differ in important ways from domestic capital markets. They must cope with special regulations that many countries impose on foreign investment; they also sometimes offer opportunities to evade regulations placed on domestic markets. Since the 1960s, huge international capital markets have arisen, most notably the remarkable London Eurodollar market, in which billions of dollars are exchanged each day without ever touching the United States.

Some special risks are associated with international capital markets. One risk is currency fluctuations: If the euro falls against the dollar, U.S. investors who bought euro bonds suffer a capital loss. Another risk is national default: A nation may simply refuse to pay its debts (perhaps because it cannot), and there may be no effective way for its creditors to bring it to court. Fears of default by highly indebted European nations have been a major concern in recent years.

The growing importance of international capital markets and their new problems demand greater attention than ever before. This text devotes two chapters to issues

arising from international capital markets: one on the functioning of global asset markets and one on foreign borrowing by developing countries.

International Economics: Trade and Money

The economics of the international economy can be divided into two broad subfields: the study of *international trade* and the study of *international money*. International trade analysis focuses primarily on the *real* transactions in the international economy, that is, transactions involving a physical movement of goods or a tangible commitment of economic resources. International monetary analysis focuses on the *monetary* side of the international economy, that is, on financial transactions such as foreign purchases of U.S. dollars. An example of an international trade issue is the conflict between the United States and Europe over Europe's subsidized exports of agricultural products; an example of an international monetary issue is the dispute over whether the foreign exchange value of the dollar should be allowed to float freely or be stabilized by government action.

In the real world, there is no simple dividing line between trade and monetary issues. Most international trade involves monetary transactions, while, as the examples in this chapter already suggest, many monetary events have important consequences for trade. Nonetheless, the distinction between international trade and international money is useful. This text covers international trade issues. Part One (Chapters 2 through 8) develops the analytical theory of international trade, and Part Two (Chapters 9 through 12) applies trade theory to the analysis of government policies toward trade.



CHAPTER 2

WORLD TRADE: AN OVERVIEW

In 2019, the world as a whole produced goods and services worth about \$88 trillion at current prices. Of this total, about 30 percent was sold across national borders: World trade in goods and services was almost \$25 trillion. That's a whole lot of exporting and importing.

In later chapters, we'll analyze why countries sell much of what they produce to other countries and why they purchase much of what they consume from other countries. We'll also examine the benefits and costs of international trade and the motivations for and effects of government policies that restrict or encourage trade.

Before we get to all that, however, let's begin by describing who trades with whom. An empirical relationship known as the *gravity model* helps to make sense of the value of trade between any pair of countries and sheds light on the impediments that continue to limit international trade even in today's global economy.

We'll then turn to the changing structure of world trade. As we'll see, recent decades have been marked by a large increase in the share of world output sold internationally, by a shift in the world's economic center of gravity toward Asia, and by major changes in the types of goods that make up that trade.

LEARNING GOALS

After reading this chapter, you will be able to:

- Describe how the value of trade between any two countries depends on the size of these countries' economies and explain the reasons for that relationship.
- Discuss how distance and borders reduce trade.
- Describe how the share of international production that is traded has fluctuated over time and why there have been two ages of globalization.
- Explain how the mix of goods and services that are traded internationally has changed over time.

Who Trades with Whom?

Figure 2-1 shows the total value of trade in goods—exports plus imports—between the United States and its top 15 trading partners in 2019. (Data on trade in services are less well broken down by trading partner; we'll talk about the rising importance of trade in services, and the issues raised by that trade, later in this chapter.) Taken together, these 15 countries accounted for 75 percent of the value of U.S. trade in that year.

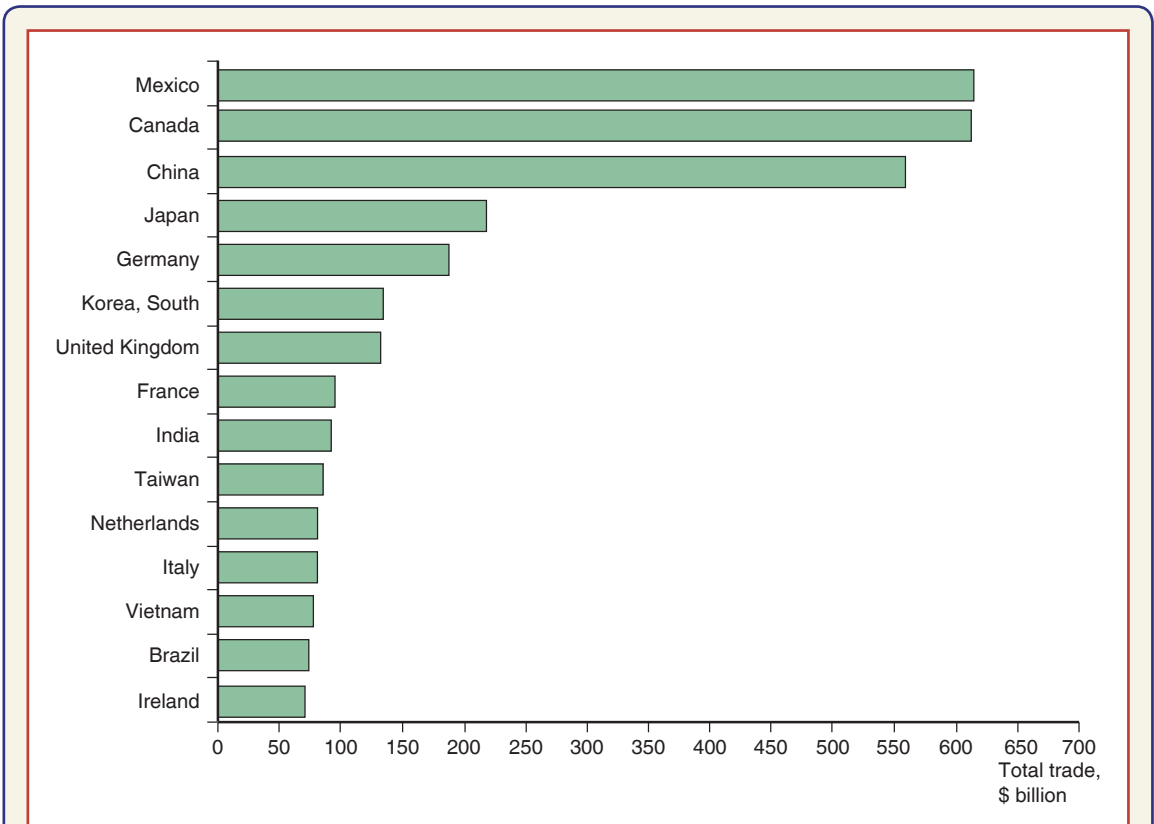


FIGURE 2-1

Total U.S. Trade with Major Partners, 2019

U.S. trade—measured as the sum of imports and exports—is mostly with 15 major partners.

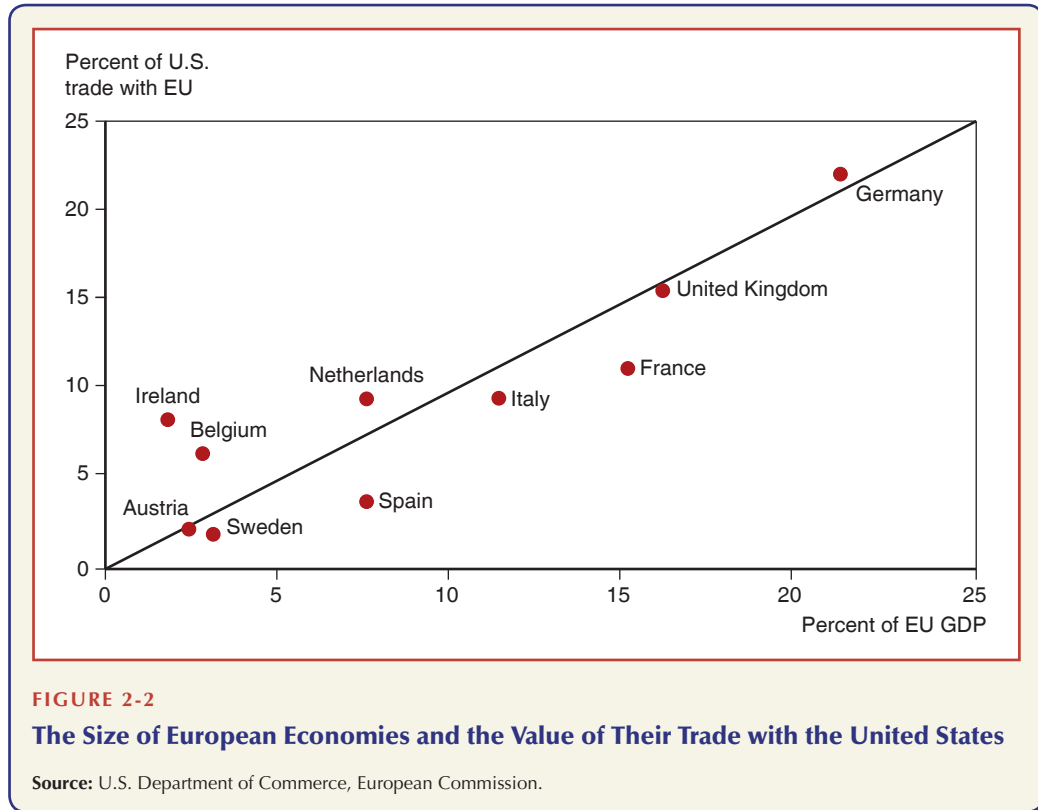
Source: U.S. Department of Commerce.

Why did the United States trade so much with these countries? Let's look at the factors that, in practice, determine who trades with whom.

Size Matters: The Gravity Model

Three of the top 15 U.S. trading partners are European nations: Germany, the United Kingdom, and France. Why does the United States trade more heavily with these three European countries than with others? The answer is that these are the three largest European economies. That is, they have the highest values of **gross domestic product (GDP)**, which measures the total value of all goods and services produced in an economy. There is a strong empirical relationship between the size of a country's economy and the volume of both its imports and its exports.

Figure 2-2 illustrates this relationship by showing the correspondence between the size of different European economies—specifically, America's 10 most important Western European trading partners in 2019—and those countries' trade with the United States in that year. On the horizontal axis is each country's GDP, expressed as a percentage of the total GDP of the European Union; on the vertical axis is each country's



share of the total trade of the United States with the EU. As you can see, the scatter of points is clustered around the dotted 45-degree line—that is, each country’s share of U.S. trade with Europe was roughly equal to that country’s share of Western European GDP. Germany has a large economy, accounting for 20 percent of Western European GDP; it also accounts for 24 percent of U.S. trade with the region. Sweden has a much smaller economy, accounting for only 3.2 percent of European GDP; correspondingly, it accounts for only 2.3 percent of U.S.–Europe trade.

Looking at world trade as a whole, economists have found that an equation of the following form predicts the volume of trade between any two countries fairly accurately,

$$T_{ij} = A \times Y_i \times Y_j / D_{ij}, \quad (2-1)$$

where A is a constant term, T_{ij} is the value of trade between country i and country j , Y_i is country i ’s GDP, Y_j is country j ’s GDP, and D_{ij} is the distance between the two countries. That is, the value of trade between any two countries is proportional, other things equal, to the *product* of the two countries’ GDPs and diminishes with the distance between the two countries.

An equation such as (2-1) is known as a **gravity model** of world trade. The reason for the name is the analogy to Newton’s law of gravity: Just as the gravitational attraction between any two objects is proportional to the product of their masses and diminishes