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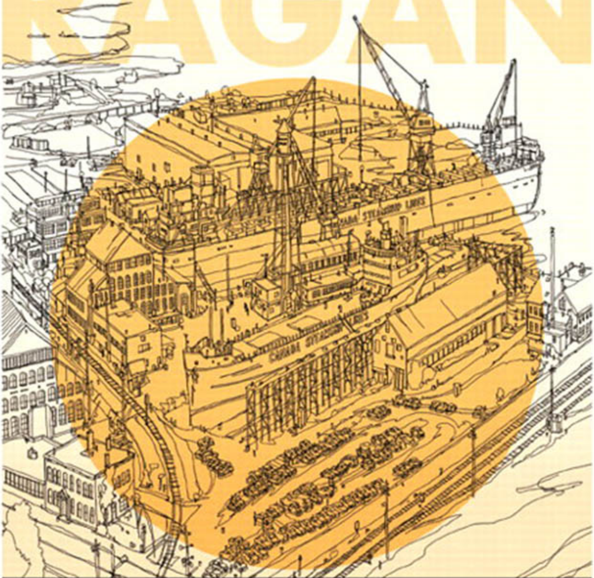

MACROECONOMICS

FOURTEENTH CANADIAN EDITION

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CHRISTOPHER T.S. RAGAN

McGill University

PEARSON

Toronto

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To the Instructor

Economics is a living discipline, changing and evolving in response to developments in the world economy and in response to the research of many thousands of economists throughout the world. Through fourteen editions, *Macroeconomics* has evolved with the discipline. Our purpose in this edition, as in the previous thirteen, is to provide students with an introduction to the major issues facing the world's economies, to the methods that economists use to study those issues, and to the policy problems that those issues create. Our treatment is everywhere guided by three important principles:

1. Economics is *scientific*, in the sense that it progresses through the systematic confrontation of theory by evidence. Neither theory nor data alone can tell us much about the world, but combined they tell us a great deal.
2. Economics is *useful*, and it should be seen by students to be so. An understanding of economic theory combined with knowledge about the economy produces many important insights about economic policy. Although we stress these insights, we are also careful to point out cases in which too little is known to support strong statements about public policy. Appreciating what is not known is as important as learning what is known.
3. We strive always to be *honest* with our readers. Although we know that economics is not always easy, we do not approve of glossing over difficult bits of analysis without letting readers see what is happening and what has been assumed. We take whatever space is needed to explain why economists draw their conclusions, rather than just asserting the conclusions. We also take pains to avoid simplifying matters so much that students would have to unlearn what they have been taught if they continue their study beyond the introductory course. In short, we have tried to follow Albert Einstein's advice:

   Everything should be made as simple as possible, but not simpler.

Current Economic Issues

In writing the fourteenth edition of *Macroeconomics*, we have tried to reflect the major economic issues that we face in the early twenty-first century.

Living Standards and Economic Growth

One of the most fundamental economic issues is the determination of overall living standards. Adam Smith wondered why some countries become wealthy while others remain poor. Though we have learned much about this topic in the past 240 years since Adam Smith's landmark work, economists recognize that there is still much we do not know.

Technological change plays a central role in our discussions of long-run economic growth in Chapters 25 and 26. We explore not only the traditional channels of saving, investment, and population growth, but also the more recent economic theories that emphasize the importance of increasing returns and endogenous growth.

We are convinced that no other introductory economics textbook places as much emphasis on technological change and economic growth as we do in this book. Given the importance of continuing growth in living standards and understanding where that growth comes from, we believe this emphasis is appropriate. We hope you agree.

Financial Crisis, Recession, and Recovery

The collapse of U.S. housing prices in 2007 led to a global financial crisis the likes of which had not been witnessed in a century, and perhaps longer. A deep recession, experienced in many countries, followed quickly on its heels. These dramatic events reawakened many people to two essential facts about economics. First, modern economies *can and do* go into recession. This essential fact had perhaps been forgotten by many who had become complacent after more than two decades of economic prosperity. Second, financial markets are crucial to the operation of modern economies. Like an electricity system, the details of financial markets are a mystery to most people, and the system itself is often ignored when it is functioning properly. But when financial markets cease to work smoothly and interest rates rise while credit flows decline, we are all reminded of their importance. In this sense, the financial crisis of 2007–2008 was like a global power failure for the world economy.

The financial crisis had many macro consequences. It affected the Canadian banking system, discussed in Chapter 27, and led to some aggressive actions by the Bank of Canada, as discussed in Chapter 29. Moreover, as the global financial crisis led to a deep recession worldwide, Canadian fiscal policy was forced to respond, as we review in Chapters 24 and 32. Finally, as has happened several times in history, the recession raised the threat of protectionist policies, as we examine in Chapter 34.

Globalization

Enormous changes have occurred throughout the world over the last few decades. Flows of trade and investment between countries have risen so dramatically that it is now common to speak of the "globalization" of the world economy. Today it is no longer possible to study any economy without taking into account developments in the rest of the world.

Throughout its history, Canada has been a trading nation, and our policies relating to international trade have often been at the centre of political debates. International trade shows up in many parts of this textbook, but it is the exclusive focus of two chapters. Chapter 33 discusses the theory of the gains from trade; Chapter 34 explores trade policy, with an emphasis on NAFTA and the WTO.

With globalization and the international trade of goods and assets come fluctuations in exchange rates. In recent years there have been substantial changes in the Canada–U.S. exchange rate—a 15-percent depreciation followed the Asian economic crisis in 1997–1998, and an even greater appreciation occurred in the 2002–2008 period. Such volatility in exchange rates complicates the conduct of economic policy. In Chapters 28 and 29 we explore how the exchange rate fits into the design and operation of Canada's monetary policy. In Chapter 35 we examine the debate between fixed and flexible exchange rates.

The forces of globalization are with us to stay. In this fourteenth edition of *Macroeconomics*, we have done our best to ensure that students are made aware of the world outside Canada and how events elsewhere in the world affect the Canadian economy.

The Role of Government

Between 1980 and 2008, the political winds shifted in Canada, the United States, and many other countries. Political parties that previously advocated a greater role for government in the economy argued the benefits of limited government. But the political winds shifted again with the arrival of the financial crisis and global recession in 2008, which led governments the world over to take some unprecedented actions. Many soon argued that we were observing the "end of laissez-faire" and witnessing the return of "big government." But was that really true?

Has the *fundamental* role of government changed significantly over the past 35 years? In order to understand the role of government in the economy, students must understand the benefits of free markets as well as the situations that cause markets to fail. They must also understand that governments often intervene in the economy for reasons related more to equity than to efficiency.

In this fourteenth edition of *Macroeconomics*, we continue to incorporate the discussion of government policy as often as possible. Here are but a few of the many examples that we explore:

- fiscal policy (in Chapters 22 and 24)
- policies related to the economy's long-run growth rate (in Chapter 26)
- monetary policy (in Chapters 28, 29, and 30)
- policies that affect the economy's long-run unemployment rate (in Chapter 31)
- the importance of debt and deficits (in Chapter 32)
- trade policies (in Chapter 34)
- policies related to the exchange rate (in Chapter 35)

The Book

Economic growth, financial crisis and recession, globalization, and the role of government are pressing issues of the day. Much of our study of economic principles and the Canadian economy has been shaped by these issues. In addition to specific coverage of growth and internationally oriented topics, growth and globalization appear naturally throughout the book in the treatment of many topics once thought to be entirely "domestic."

Most chapters of *Macroeconomics* contain some discussion of economic policy. We have two main goals in mind when we present these discussions:

1. We aim to give students practice in using economic theory, because applying theory is both a wonderfully effective teaching method and a reliable test of students' grasp of theory.
2. We want to introduce students to the major policy issues of the day and to let them discover that few policy debates are as "black and white" as they often appear in the press.

Both goals reflect our view that students should see economics as useful in helping us to understand and deal with the world around us.

Structure and Coverage

Our treatment of macroeconomics is divided into six parts. We make a clear distinction between the economy in the short run and the economy in the long run, and we get quickly to the material on long-run economic growth. Students are confronted with issues of long-run economic growth *before* they are introduced to issues of money and banking. Given the importance of economic growth in driving overall living standards, we believe that this is an appropriate ordering of the material, but for those who prefer to discuss money before thinking about economic growth, the order can be easily switched without any loss of continuity.

The first macro chapter, Chapter 19, introduces readers to the central macro variables, what they mean, and why they are important. The discussion of national income accounting in Chapter 20 provides a thorough treatment of the distinction between real and nominal GDP, the distinction between GDP and GNP, and a discussion of what measures of national income *do not measure* and whether these omissions really matter.

Part 8 develops the core short-run model of the macro economy, beginning with the fixed-price (Keynesian Cross) model in Chapters 21 and 22 and then moving on to the *AD/AS* model in Chapter 23. Chapter 21 uses a closed economy model with no government to explain the process of national-income determination and the nature of the multiplier. Chapter 22 extends the setting to include international trade and government spending and taxation. Chapter 23 rounds out our discussion of the short run with the *AD/AS* framework, discussing the importance of both aggregate demand and aggregate supply shocks. We place the Keynesian Cross before the *AD/AS* model to show that there is no mystery about where the *AD* curve comes from and why it is downward sloping; the *AD* curve is derived directly from the Keynesian Cross model. In contrast, books that begin their analysis with the *AD/AS* model are inevitably less clear about where the model comes from. We lament the growing tendency to omit the Keynesian Cross from introductory macroeconomics textbooks; we believe the model has much to offer students in terms of economic insights.

Part 9 begins in Chapter 24 by showing how the short-run model evolves toward the long run through the adjustment of factor prices—what we often call the Phillips curve. We introduce potential output as an "anchor" to which real GDP returns following *AD* or *AS* shocks. This chapter also addresses issues in fiscal policy, including the important distinction between automatic stabilizers and discretionary fiscal stabilization policy. Chapter 25 is a short chapter that contrasts short-run with long-run macroeconomics, emphasizing the different typical causes of output changes over the two time spans. Using Canadian data, we show that long-run changes in GDP have their root causes in changes in factor supplies and productivity, whereas short-run changes in GDP are more closely associated with changes in the factor utilization rate. With this short-run/long-run distinction firmly in place, we are well positioned for the detailed discussion of long-run economic growth that appears in Chapter 26. Our treatment of long-run growth, which we regard as one of the most important issues facing Canada and the world today, goes well beyond the treatment in most introductory texts.

Part 10 focuses on the role of money and financial systems. Chapter 27 discusses the nature of money, various components of the money supply, the commercial banking system, and the Bank of Canada. In Chapter 28 we offer a detailed discussion of the link between the money market and other economic variables such as interest rates, the exchange rate, national income, and the price level. In Chapter 29 we discuss the Bank of Canada's monetary policy, including a detailed discussion of inflation targeting. The chapter ends with a review of Canadian monetary policy over the past 30 years.

Part 11 deals with some of today's most pressing macroeconomic policy issues. It contains separate chapters on inflation, unemployment, and government budget deficits. Chapter 30 on inflation examines the central role of expectations in determining inflation and the importance of credibility on the part of the central bank. Chapter 31 on unemployment examines the determinants of frictional and structural unemployment and discusses likely reasons for increases in the NAIRU over the past few decades. Chapter 32 on budget deficits stresses the effect of deficits on long-term economic growth.

Virtually every macroeconomic chapter contains at least some discussion of international issues. However, the final part of *Macroeconomics* focuses primarily on international economics. Chapter 33 gives the basic treatment of international trade, developing both the traditional theory of static comparative advantage and newer theories based on imperfect competition and dynamic comparative advantage. Chapter 34 discusses both the positive and normative aspects of trade policy, as well as the WTO and NAFTA. Chapter 35 introduces the balance of payments and examines exchange-rate determination. Here we also discuss three important policy issues: the desirability of current-account deficits or surpluses, whether there is a "right" value for the Canadian exchange rate, and the costs and benefits of Canada's adopting a fixed exchange rate.

We hope you find this menu both attractive and challenging; we hope students find the material stimulating and enlightening. Many of the messages of economics are complex—if economic understanding were only a matter of common sense and simple observation, there would be no need for professional economists and no need for textbooks like this one. To understand economics, one must work hard. Working at this book should help readers gain a better understanding of the world around them and of the policy problems faced by all levels of government. Furthermore, in today's globalized world, the return to education is large. We like to think that we have contributed in some small part to the understanding that increased investment in human capital by the next generation is necessary to restore incomes to the rapid growth paths that so benefited our parents and our peers. Perhaps we may even contribute to some income-enhancing accumulation of human capital by some of our readers.

Substantive Changes to This Edition

We have revised and updated the entire text with guidance from an extensive series of formal reviews and other feedback from both users and nonusers of the previous editions of this book. As always, we have striven very hard to improve the teachability and readability of the book. We have focused the discussions so that each major point is emphasized as clearly as possible, without distracting the reader with nonessential points. *Additional Topics*, available on MyEconLab (www.myeconlab.com), address theoretical, empirical, and policy discussions that are interesting but optional. (A complete listing of the *Additional Topics* is provided following the Contents after the List of Boxes.) As in recent editions, we have kept all core material in the main part of the text. Three types of boxes (Applying Economic Concepts, Lessons from History, and Extensions in Theory) are used to show examples or extensions that can be skipped without fear of missing an essential concept. But we think it would be a shame to skip too many of them, as there are many interesting examples and policy discussions in these boxes.

What follows is a brief listing of the main changes that we have made to the textbook.

Microeconomics Introduction

Part 1: What Is Economics?

Chapter 1 has been significantly rewritten and rearranged. We now begin with a brief discussion of six key issues in the Canadian and world economies, and then turn to examine resources and scarcity, coordination in markets, and alternative economic systems. We have added a discussion of the role of economic policy. In Chapter 2, we have improved our discussion of the nature of theories, causation, and predictions, and we have added a new box discussing where economists get jobs and what kinds of work they do.

Part 2: An Introduction to Demand and Supply

In Chapter 3 on the basics of demand and supply, we have added a new box explaining why the model works well for commodities (like apples) but not so well for differentiated products (like iPhones).

Macroeconomics

Part 7: An Introduction to Macroeconomics

We motivate Chapter 19 with a new discussion of the onset and effects of the global financial crisis, as well as the associated debates over the role of government intervention. We have improved our discussion of output gaps and the meaning of full employment. In Chapter 20, we have expanded our discussion of whether and why the omissions from GDP matter.

Part 8: The Economy in the Short Run

In Chapter 21, we have clarified the key assumptions used in the short-run macro model. In Chapter 22, we have sharpened the discussion about fiscal policy in the final section. In Chapter 23, we have streamlined and improved our discussion of the slope of the *AS* curve, and we have simplified our discussion of how technological changes shift the curve. We have also clarified the existing box on the Keynesian *AS* curve.

Part 9: The Economy in the Long Run

In Chapter 24, we have clarified what we mean by the short run, the adjustment process, and the long run. We clarify the assumption that *AD* and *AS* shocks do not change the value of Y^*, but state that this assumption is debated (and addressed in later chapters). We have improved our discussion of the paradox of thrift and the motivation for fiscal stabilization policy. When examining the connection between fiscal policy and growth, we now address the possibility that fiscal policy may have a direct effect on Y^* and thereby reduce the extent of crowding out. In Chapter 25, we have streamlined the opening discussions about inflation and Japanese growth. We have also added a new box explaining what productivity growth "really looks like" in some easy-to-imagine occupational settings. Chapter 26 on long-run economic growth now has a substantially improved introduction. We have deleted the old boxes on "growth is good" and "growth is bad" but have added a new box outlining the modern and respectable arguments against continued growth in the developed economies. We have shortened the discussion of the opportunity cost of growth, and we have improved our discussion of the limits to growth.

Part 10: Money, Banking, and Monetary Policy

In Chapter 27 we have rewritten and modernized the discussion of deposit money and have streamlined the discussion of commercial banks. In Chapter 28, we have added more on riskiness to our existing discussion of bonds, including reference to some European countries today. We have completely rewritten our section on the neutrality and nonneutrality of money and have added new discussions on hysteresis effects—two reasons why Y^* may be affected by changes in the money supply. We have also added a new box on money neutrality as it applies to monetary reform and a new discussion of the connection between inflation and money growth across countries. In Chapter 29, we have clarified our discussion of how the Bank achieves its target for the overnight rate. We have entirely rewritten our discussion about the motivation for the adoption of inflation targeting, and also about the role of the output gap, although the central messages are unchanged.

Part 11: Macroeconomic Problems and Policies

In Chapter 30, we have streamlined the discussion of accelerating inflation and have substantially shortened the discussion of the three phases of a disinflation. In Chapter 31 on unemployment, we have added a new discussion of discouraged workers and underemployment. We have also entirely rewritten our discussion of competing theories of the labour market—now posed as market-clearing versus non-market-clearing theories. We have deleted the old box on RBC models but have added a new box on additional reasons for wage stickiness. Chapter 32 examines debt and deficits. We have deleted the old box on the algebra of debt dynamics (which now occurs in a math note) and have added a new box that applies the debt-dynamics equation to the situation of Greece in 2011. We have reworked the section on crowding out and make the point that if the fiscal expansion increases the value of Y^* then the extent of crowding out will fall. We have deleted the old box on foreign-held debt and also deleted the repetitive section on the effect of budget surpluses. We have improved the discussion of fiscal rules, especially regarding the emphasis on a relatively stable debt-to-GDP ratio.

Part 12: Canada in the Global Economy

Chapter 33 on the gains from international trade has been updated and revised, but there is no substantial change to its structure or messages. In Chapter 34, we have reworked and clarified our discussion of the case for protection. We have shortened the discussion of countervailing duties but expanded the discussion and examples of national treatment in NAFTA. We have also streamlined our discussion of the ongoing WTO Doha round. Our mention of the new Trans Pacific Partnership now leads us to a new box on the ongoing drive to diversify Canada's trade. In Chapter 35, we have clarified our explanation for why the balance of payments must balance, and we have simplified our discussion of why changes in export prices lead to exchange-rate fluctuations.

***

If you are moved to write to us (and we hope that you will be!), please do. You can send any comments or questions regarding the text (or any of the supplementary material, such as the *Instructor's Manual*, the *Study Guide*, the *TestGen*, or the web-based *Additional Topics*) to:

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To the Student

Welcome to what is most likely your first book about economics! You are about to encounter what is for most people a new way of thinking, which often causes people to see things differently than they did before. But learning a new way of thinking is not always easy, and you should expect some hard work ahead. We do our best to be as clear and logical as possible and to illustrate our arguments whenever possible with current and interesting examples.

You must develop your own technique for studying, but the following suggestions may prove helpful. Begin by carefully considering the Learning Objectives at the beginning of a chapter. Read the chapter itself relatively quickly in order to get the general idea of the argument. At this first reading, you may want to skip the boxes and any footnotes. Then, after reading the Summary and the Key Concepts (at the end of each chapter), reread the chapter more slowly, making sure that you understand each step of the argument.

With respect to the figures and tables, be sure you understand how the conclusions that are stated in boldface at the beginning of each caption have been reached. You should be prepared to spend time on difficult sections; occasionally, you may spend an hour on only a few pages. Paper and pencil are indispensable equipment in your reading. It is best to follow a difficult argument by building your own diagram while the argument unfolds rather than by relying on the finished diagram as it appears in the book.

The end-of-chapter Study Exercises require you to practise using some of the concepts that you learned in the chapter. These will be excellent preparation for your exams. To provide you with immediate feedback, we have posted Solutions to Selected Study Exercises on MyEconLab (www.myeconlab.Com). We strongly advise that you should seek to understand economics, not to memorize it.

The red numbers in square brackets in the text refer to a series of mathematical notes that are found starting on page M-1 at the end of the book. For those of you who like mathematics or prefer mathematical argument to verbal or geometric exposition, these may prove useful. Others may disregard them.

In this edition of the book, we have incorporated many elements to help you review material and prepare for examinations. A brief description of all the features in this book is given in the separate section that follows.

We encourage you to make use of MyEconLab that accompanies this book (www.myeconlab.com) at the outset of your studies. MyEconLab contains a wealth of valuable resources to help you. MyEconLab provides Solutions to Selected Study Exercises. It also includes many additional practice questions, some of which are modelled on Study Exercises in the book. MyEconLab also contains many *Additional Topics*—these represent material written especially for this textbook and include many interesting theoretical, empirical, and policy discussions. You can also find animations of some of the key figures in the text, marked with the symbol below the figure number, as well as an electronic version of the textbook. For more details about MyEconLab, please see the description on p. ii.

We strongly suggest you make use of the excellent *Study Guide* written expressly for this text. The *Study Guide* is closely integrated with the book; it offers practice questions and exercises that will test and reinforce your understanding of the concepts and analytical techniques stressed in each chapter of the text and will help you prepare for your examinations. Explanations are provided for the answers to many of the Multiple-Choice Questions to facilitate your independent study. Being able to solve problems and to communicate and interpret your results are important goals in an introductory course in economics. The *Study Guide* can play a crucial role in your acquisition of these skills.

Over the years, the book has benefited greatly from comments and suggestions we have received from students. Please feel free to send your comments to christopher.ragan@mcgill.ca. Good luck, and we hope you enjoy your course in economics!

Features of This Edition

We have made a careful effort with this edition to incorporate features that will facilitate the teaching and learning of economics.

- A set of **Learning Objectives** at the beginning of each chapter, correlated to the **Chapter Outline**, clarifies the skills and knowledge to be learned in each chapter. These same learning objectives are used in the chapter summaries, as well as in the *Study Guide*.

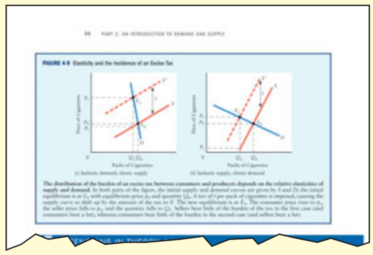

28
Money, Interest Rates, and Economic Activity

- **Major ideas** are highlighted with a yellow background in the text.
- **Key terms** are boldfaced where they are defined in the body of the text and they are restated with their definitions in the margins. In the index at the back of the book, each key term and the page reference to its definition are boldfaced.
- **Weblinks** to useful Internet addresses are given in the margins. Each weblink presents a URL address, along with a brief description of the material available there. Some links are to government home pages where you can obtain much additional data. Other links are to organizations such as OPEC, the UN, and the WTO.


17.1 The Economic Rationale for Regulating Pollution

Pollution as an Externality

- The **colour scheme for figures** consistently uses the same colour for each type of curve. For example, all demand curves are blue and all supply curves are red.
- **A caption for each figure and table** summarizes the underlying economic reasoning. Each caption begins with a boldfaced statement of the relevant economic conclusion.

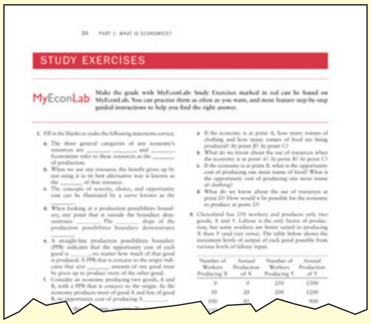


- **Applying Economic Concepts** boxes demonstrate economics in action, providing examples of how theoretical material relates to issues of current interest.
- **Extensions in Theory** boxes provide a deeper treatment of a theoretical topic that is discussed in the text.
- **Lessons from History** boxes contain discussions of a particular policy debate or empirical finding that takes place in a historical context.
- **Photographs with short captions** are interspersed throughout the chapters to illustrate some of the arguments.


APPLYING ECONOMIC CONCEPTS 10-1

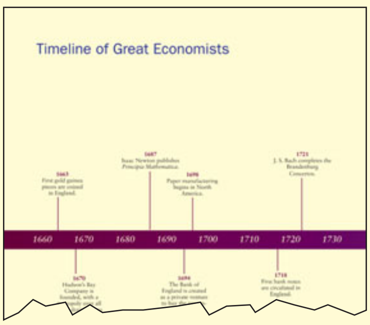
Entry Barriers for Irish Pubs During the Booming 1990s

- **Chapter Summaries** are organized using the same numbered heading as found in the body of the chapter. The relevant Learning Objective (LO) numbers are given in red next to each heading in the summary.
- **Key Concepts** are listed near the end of each chapter.



- A set of **Study Exercises** is provided for each chapter. These often quantitative exercises require the student to analyze problems by means of computations, graphs, or explanations.

- A set of **Mathematical Notes** is presented in a separate section near the end of the book. Because mathematical notation and derivations are not necessary to understand the principles of economics but are more helpful in advanced work, this seems to be a sensible arrangement. References in the text to these mathematical notes are given by means of red numbers in square brackets.



- A **Timeline of Great Economists,** extending from the mid-seventeenth century to the late twentieth century, is presented near the end of the book. Along this timeline we have placed brief descriptions of the life and works of some great economists, most of whom the reader will encounter in the textbook. The timeline also includes some major world events to give readers an appreciation for when these economists did their work.
- For convenience, a list of the **Common Abbreviations Used in the Text** is given on the final page of the text.

Supplements

A comprehensive set of supplements has been carefully prepared to assist students and instructors in using this new edition.

MyEconLab

The moment you know.

Educators know it. Students know it. It's that inspired moment when something that was difficult to understand suddenly makes perfect sense. Our MyLab products have been designed and refined with a single purpose in mind—to help educators create that moment of understanding with their students.

MyEconLab delivers proven results in helping individual students succeed. It provides engaging experiences that personalize, stimulate, and measure learning for each student. And, it comes from a trusted partner with educational expertise and an eye on the future.

MyEconLab can be used by itself or linked to any learning management system. Visit MyEconLab to learn more about how it combines proven learning applications with powerful assessment.

MyEconLab—the moment you know.

MyEconLab provides students with personalized Study Plans and the opportunity for unlimited practice. It also provides instructors with ready-to-use assignments that can be graded electronically. For more information on MyEconLab, please visit www.myeconlab.com.

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Study Guide

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- Hints and Tips
- Chapter Review consisting of Multiple-Choice Questions, organized into sections matching the numbered sections in the textbook
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Christopher Ragan

About the Author

Chris Ragan received his B.A. in economics from the University of Victoria, his M.A. from Queen's University, and his Ph.D. from the Massachusetts Institute of Technology in Cambridge, Massachusetts in 1990. He then joined the Department of Economics at McGill University in Montreal, where he has taught graduate courses in macroeconomics and international finance and undergraduate courses in macroeconomic theory and policy, current economic issues, and financial crises. Over the years he has taught principles of economics (micro and macro) to thousands of students at McGill and maintains a reputation on campus as being "super-excited" about economics. In 2007, Chris Ragan was awarded the Noel Fieldhouse Teaching Award from McGill for teaching excellence.

Professor Ragan's research focuses mainly on the design and implementation of macroeconomic policy in Canada. He has been privileged to serve the federal government in Ottawa as Special Advisor to the Governor of the Bank of Canada and as the Clifford Clark Visiting Economist at the Department of Finance. He currently serves on the Monetary Policy Council of the C.D. Howe Institute, where he also holds the David Dodge Chair in Monetary Policy.

Chris Ragan used the third edition of this textbook as an undergraduate student in 1981 and joined Richard Lipsey as a co-author in 1997 for the book's ninth edition. For several editions, Lipsey and Ragan worked diligently to maintain the book's reputation as the clearest and most comprehensive introductory economics textbook in Canada. Although Professor Ragan is now the sole listed author, this fourteenth edition of *Economics* still owes much to the dedication of previous authors, including Richard Lipsey, Douglas Purvis, and Gordon Sparks.

About the Cover

The cover image of this edition is an aerial drawing of the bustling port of Collingwood, Ontario, by artist Steve McDonald. Steve is an established Canadian artist and founding member of the acclaimed collective Drawnonward. The collective has been the subject of award-winning documentaries shown on CBC, Bravo, and TVO, profiled for the artists' unique bond with Canada's landscape. For more information, visit www.steviemcd.com.

1 Economic Issues and Concepts

CHAPTER OUTLINE	LEARNING OBJECTIVES (LO)
	After studying this chapter you will be able to
1.1 WHAT IS ECONOMICS?	1 explain the importance of scarcity, choice, and opportunity cost, and how all three concepts are illustrated by the production possibilities boundary.
1.2 THE COMPLEXITY OF MODERN ECONOMIES	2 view the market economy as self-organizing in the sense that order emerges from a large number of decentralized decisions. 3 explain how specialization gives rise to the need for trade, and that trade is greatly facilitated by money. 4 identify the economy's decision makers and see how their actions create a circular flow of income and expenditure.
1.3 IS THERE AN ALTERNATIVE TO THE MARKET ECONOMY?	5 see that all actual economies are mixed economies, having elements of free markets, tradition, and government intervention.

MANY of the challenges we face in Canada and around the world are primarily economic. Some are mostly environmental, social, or political, but with many issues there is also a significant economic dimension. Wars and civil unrest throughout history have often had economic roots, with antagonists competing for control over vital resources; global climate change is a phenomenon that engages the attention of the scientific and environmental communities, but the economic implications of both the problem and its solutions will be tremendous; population aging in Canada and other developed countries will have consequences for the structure of our societies, but it will also have significant economic effects; and the existence of poverty, whether in Canada or in the much poorer nations of the world, most certainly has economic causes and consequences. We begin by discussing several issues that are currently of pressing concern, both inside and outside of Canada.

Productivity Growth Productivity growth lies at the heart of the long-term increase in Canadians' average living standards. Productivity is a measure of how much output (or income) is produced by one hour of work effort, and it has been rising gradually over the past century. In recent years, however, productivity growth has been slowing in Canada, and economists in universities and governments have been examining the cause of the slowdown and also examining what policies, if any, might reverse this trend. If your living standards are to improve over your lifetime as much as your grandparents' did over theirs, Canada's rate of productivity growth will need to increase significantly.

Population Aging The average age of the Canadian population is steadily rising, due both to a long-term decline in fertility and to an increase in average life-expectancy. This population aging has several effects. First, since people eventually retire as they approach their "golden years," there will be a decline in the growth rate of Canada's labour force. As a result, some firms and industries will find it more difficult to find workers, and wages are likely to rise as a result. Second, since our publicly funded health-care system tends to spend much more on seniors than it does on Canadians under the age of 55, there will be a significant increase in public health-care spending as a share of the total size of the economy. This will put new and difficult demands on governments' fiscal positions, and force them either to increase tax rates or reduce spending in order to balance their budgets. This same demographic problem is being encountered in most developed countries.

Climate Change Climate change is a global phenomenon that will have important implications for most nations on Earth. The long-term increase in the emission of greenhouse gases—caused largely from the burning of fossil fuels such as oil, coal, and natural gas—has led to an accumulation of these gases in the atmosphere and is contributing to a long-term increase in Earth's average temperature. The rise in temperature is leading to the melting of polar ice caps, a slow increase in sea level, a creeping expansion of the world's great deserts, and reductions in agricultural productivity. Particularly troubling is that much of the burden of climate change appears to be falling on developing countries that are least able to bear the burden. Global climate change presents a challenge for the design of better economic policy, aimed at reducing greenhouse-gas emissions without unduly slowing the growth of material living standards. It also presents a challenge for global diplomacy, aimed at getting all countries—rich and poor—involved in a collective effort of reducing their emissions.

Global Financial Stability The collapse of the U.S. housing market in 2007–2008 led to the failure of several major financial institutions and caused a global financial crisis. The largest and most synchronized worldwide recession in over 70 years followed in its wake. Many elements came together to cause these events, including new mortgage practices, innovative financial instruments, expansionary monetary policy, regulation in the financial sector, and many others. The crisis led most of the world's major governments to intervene considerably in their economies—by providing assistance to their financial institutions, by directly expanding expenditures on goods and services, and by providing liquidity to their financial markets. By 2010 most of these economies had emerged from recession and were on their way to healthy economic recoveries. However, it was then clear that governments needed to play a role in redesigning their financial systems to reduce the likelihood that similar events would occur in the future. The quest for "financial stability" has become a policy imperative in many countries.

Rising Government Debt The aggressive government response to the global financial crisis led to massive new public spending in an effort to dampen the effects of the recession. These increases in government spending, however, took place when the recession was causing a decline in government tax revenues. As a result, governments' budget deficits increased for several years, and government debt in most countries increased significantly between 2008 and 2012. Even by 2010 it had become clear that government debt in some European countries (especially Greece, Portugal, Ireland, Italy, and Spain) was so high that bondholders were no longer prepared to purchase new government bonds or renew their existing holdings of bonds. The resulting upward spike in interest rates made it almost impossible for these countries to carry out their regular business without special financial assistance from other governments or from the International Monetary Fund. The political tensions created among European governments threatened to spell the end of Europe's common currency, the euro. The European "sovereign debt crisis" is still largely unresolved.

Globalization Canada is a small nation that relies significantly on trade with the rest of the world for its prosperity. We sell our lumber and oil and beef to the world, as we do our engineering and legal and financial services. As consumers we buy a wide variety of products from the rest of the world, including coffee, leather shoes, and fine wine; our firms also buy many inputs from abroad, including machine tools, software, and some specialized raw materials. In short, international trade and the ongoing process of globalization are crucial to Canada's economic prosperity. Yet globalization also presents some challenges. A decision to reduce tariffs on imported goods generates overall benefits for Canada, but it also generates temporary costs for those Canadians who are displaced from their previously protected occupations. And greater competition for Canadian firms from those in developing countries leads to overall increases in domestic living standards, as Canadians now have access to cheaper goods. However, it may also lead to a decline in some middle-level jobs in Canada that get replaced slowly with jobs in expanding sectors.

These six issues are only a small sample of the many economic issues that confront Canada and other countries. To understand any of them it is necessary to have a basic understanding of economics—how markets work, how prices are determined, in what sense markets sometimes fail to work well, and how government policy can be used to improve outcomes. These are the main topics of this book. There is a lot to learn, and not many weeks in your college or university course. So, let's get started at the very beginning.

1.1 What Is Economics?

These issues would not matter much if we lived in an economy of such plenty that there was always enough to fully satisfy everyone's wants. If we could always get all the goods we wanted, it wouldn't be so important to be more productive in our work. Rapid growth in health-care spending would not be such a problem if governments had no limits on what they could spend, or if there were not problems associated with high levels of government debt. And there would be no need to trade with other countries if Canada could easily and cheaply produce coffee, clothing, electronic components, and all those other things that we currently import from foreign lands. But such an economy with unlimited products is impossible. Why?

The short answer is because we live in a world of *scarcity*. Compared with the desires of individuals for products such as better food, clothing, housing, education, holidays, health care, and entertainment, the existing supplies of resources are clearly inadequate. They are sufficient to produce only a small fraction of the goods and services that we desire. This scarcity gives rise to the basic economic problem of choice. If we cannot have everything we want, we must choose what we will and will not have.

One definition of *economics* comes from the great economist Alfred Marshall (1842–1924), who we will encounter at several points in this book: "Economics is a study of mankind in the ordinary business of life." A more informative definition is

Economics is the study of the use of scarce resources to satisfy unlimited human wants.

Scarcity is inevitable and is central to economic problems. What are society's resources? Why is scarcity inevitable? What are the consequences of scarcity?

Resources

A society's resources are often divided into the three broad categories of land, labour, and capital. *Land* includes all natural endowments, such as arable land, forests, lakes, crude oil, and minerals. *Labour* includes all mental and physical human resources, including entrepreneurial capacity and management skills. *Capital* includes all manufactured aids to production, such as tools, machinery, and buildings. Economists call such resources **factors of production** because they are used to produce the things that people desire. We divide what is produced into goods and services. **Goods** are tangible (e.g., cars and shoes), and **services** are intangible (e.g., haircuts and education).

factors of production Resources used to produce goods and services; frequently divided into the basic categories of land, labour, and capital.

goods Tangible commodities, such as cars or shoes.

services Intangible commodities, such as haircuts or medical care.

production The act of making goods or services.

consumption The act of using goods or services to satisfy wants.

People use goods and services to satisfy many of their wants. The act of making them is called **production**, and the act of using them to satisfy wants is called **consumption**. Goods are valued for the services they provide. For example, a car helps to satisfy its owner's desires for transportation, mobility, and possibly status.

Scarcity and Choice

For almost all of the world's 7 billion people, scarcity is real and ever-present. As we said earlier, relative to our desires, existing resources are inadequate; there are enough to produce only a fraction of the goods and services that we want.

But aren't the advanced industrialized nations rich enough that scarcity is nearly banished? After all, they are "affluent" societies. Whatever affluence may mean, however, it does not mean the end of the problem of scarcity. Canadian families that earn $75 000 per year, the average after-tax income for a Canadian family in 2013 but a princely amount by *world* standards, have no trouble spending it on things that seem useful to them, and they would certainly have no trouble convincing you that their resources are scarce relative to their desires.

Because resources are scarce, all societies face the problem of deciding what to produce and how much each person will consume. Societies differ in who makes the choices and how they are made, but the need to choose is common to all. Just as scarcity implies the need for choice, so choice implies the existence of cost. A decision to have more of one thing requires a decision to have less of something else. The less of "something else" can be thought of as the cost of having more of that "one thing."

Scarcity implies that choices must be made, and making choices implies the existence of costs.

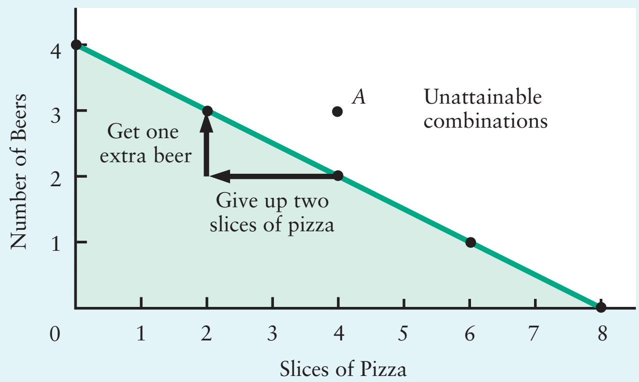
Opportunity Cost To see how choice implies cost, we look first at a trivial example and then at one that affects all of us; both examples involve precisely the same fundamental principles.

Consider the choice David faces when he goes out for pizza and beer with his friends. Suppose that he has only $16 for the night and that each beer costs $4 and each slice of pizza costs $2. Since David is both hungry and thirsty, he would like to have 4 slices of pizza and 3 beers, but this would cost $20 and is therefore unattainable given David's scarce resources of $16. There are several combinations, however, that are attainable: 8 slices of pizza and 0 beers; 6 slices of pizza and 1 beer; 4 slices of pizza and 2 beers; 2 slices of pizza and 3 beers; and 0 slices of pizza and 4 beers.

David's choices are illustrated in Figure 1-1, which graphs the combinations of beers and slices of pizza that David considers buying. The numbers of slices of pizza are shown on the horizontal axis; the numbers of beers are shown on the vertical axis. The downward-sloping line connects the five possible combinations of beer and pizza that use up all of David's resources—$16. This is David's *budget line*. Notice that point *A* shows a combination—4 slices of pizza and 3 beers—that lies outside the line because its total cost is more than $16. Point *A* is *unattainable* to David. If David could buy fractions of a beer and of a slice of pizza, *all* points that lie on or inside the line would be *attainable* combinations.

In this setting David can ask himself, "What is the cost of one beer?" One answer is that the cost is $4. An equivalent answer, assuming that he wanted to spend all of this $16 on these two items, is that the cost of one beer is the two slices

FIGURE 1-1 Choosing Between Pizza and Beer



Limited resources force a choice among competing alternatives. Given a total of $16 to spend on $2 slices of pizza and $4 beers, some choices are unattainable, such as point *A*. The five points on the green line show *all* combinations that are attainable by spending the $16. If it were possible to buy parts of a beer and parts of a slice of *pizza*, then all combinations on the line and in the green area would be attainable. If the entire $16 is to be spent, the choice between more pizza and more beer involves an opportunity cost. The *slope* of the green line reflects opportunity costs. The opportunity cost of one extra slice of pizza is half of a beer; the opportunity cost of one extra beer is two slices of pizza.

APPLYING ECONOMIC CONCEPTS 1-1

The Opportunity Cost of Your University Degree

The opportunity cost of choosing one thing is what must be given up as the best alternative. Computing the opportunity cost of a college or university education is a good example to illustrate which factors are included in the computation of opportunity cost. You may also be surprised to learn how expensive your university degree really is!*

Suppose that a bachelor's degree requires four years of study and that each year you spend $6000 for tuition fees—approximately the average at Canadian universities in 2013—and a further $1500 per year for books and materials. Does this mean that the cost of a university education is only $30 000? Unfortunately not; the true cost of a university degree to a student is much higher.

The key point is that the opportunity cost of a university education does not include just the out-of-pocket expenses on tuition and books. You must also take into consideration *what you are forced to give up* by choosing to attend university. Of course, if you were not studying you could have done any one of a number of things, but the relevant one is *the one you would have chosen instead*—your best alternative to attending university.

Suppose that your best alternative to attending university was to get a job. In this case, the opportunity cost of your university degree must include the earnings that you would have received had you taken that job. Suppose that your (after-tax) annual earnings would have been $25 000 per year, for a total of $100 000 if you had stayed at that job for four years. To the direct expenses of $30 000, we must therefore add $100 000 for the earnings that you gave up by not taking a job. This brings the true cost of your university degree—the opportunity cost—up to $130 000!

Notice that the cost of food, lodging, clothing, and other living expenses did not enter the calculation of the opportunity cost in this example. The living expenses must be incurred in either case—whether you attend university or get a job.

If the opportunity cost of a degree is so high, why do students choose to go to university? Maybe students

of pizza he must give up to get it. In fact, we say in this case that two slices of pizza is the *opportunity cost* of one beer, since they are the opportunity David must give up to get one extra beer.

Every time a choice is made, opportunity costs are incurred.

opportunity cost The cost of using resources for a certain purpose, measured by the benefit given up by not using them in their best alternative use.

As simple as it may seem, the idea of opportunity cost is one of the central insights of economics. Here is a precise definition: The **opportunity cost** of using resources for a certain purpose is *the benefit given up by not using them in the best alternative way*. That is, it is the cost measured in terms of other goods and services that could have been obtained instead. If, for example, resources that could have produced 20 km of road are best used instead to produce one hospital, the opportunity cost of a hospital is 20 km of road; looked at the other way round, the opportunity cost of 20 km of road is one hospital.

See *Applying Economic Concepts 1-1* for an example of opportunity cost that should seem quite familiar to you: the opportunity cost of getting a university degree.

Production Possibilities Boundary Although David's choice between pizza and beer may seem to be a trivial consumption decision, the nature of the decision is the same whatever the choice being made. Consider, for example, the choice that any country must face between producing military goods (such as ships, tanks, and guns) and civilian goods (such as food, clothing, and housing).

If resources are fully and efficiently employed, it is not possible to have more of both. However, as the government cuts defence expenditures, resources needed to produce civilian goods will be freed up. The opportunity cost of increased civilian goods is therefore

The opportunity cost to an individual completing a university degree in Canada is large. It includes the direct cost of tuition and books as well as the earnings forgone while attending university.

simply enjoy learning and thus are prepared to incur the high cost to be in the university environment. Or maybe they believe that a university degree will significantly increase their future earning potential. In Chapter 14 we will see that this is true. In this case, they are giving up four years of earnings at one salary so that they can invest in building their skills in the hope of enjoying many more years in the future at a considerably higher salary.

Whatever the reason for attending college or university, the recognition that a post-secondary degree is very expensive should convince students to make the best use of their time while they are there. Read on!

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*This box considers only the cost *to the student* of a university degree. For reasons that will be discussed in detail in Part Six of this book, provincial governments heavily subsidize post-secondary education in Canada. Because of this subsidy, the cost *to society* of a university degree is generally much higher than the cost to an individual student.

the forgone military output. Or, if we were considering an increase in military output, the opportunity cost of increased military output would be the forgone civilian goods.

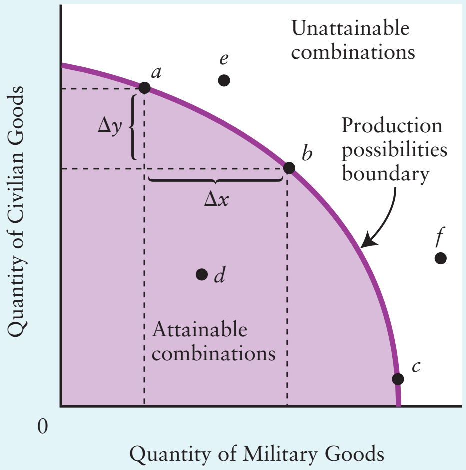
The choice is illustrated in Figure 1-2. Because resources are scarce, some combinations—those that would require more than the total available supply of resources for their production—cannot be attained. The negatively sloped curve on the graph divides the combinations that can be attained from those that cannot. Points above and to the right of this curve cannot be attained because there are not enough resources, points below and to the left of the curve can be attained without using all of the available resources, and points on the curve can just be attained if all the available resources are used efficiently. The curve is called the **production possibilities boundary**. (Sometimes "boundary" is replaced with "curve" or "frontier.") It has a negative slope because when all resources are being used efficiently, producing more of one good requires producing less of others.

production possibilities boundary A curve showing which alternative combinations of commodities can just be attained if all available resources are used efficiently; it is the boundary between attainable and unattainable output combinations.

A production possibilities boundary illustrates three concepts: scarcity, choice, and opportunity cost. Scarcity is indicated by the unattainable combinations outside the boundary; choice, by the need to choose among the alternative attainable points along the boundary; and opportunity cost, by the negative slope of the boundary.

The shape of the production possibilities boundary in Figure 1-2 implies that an increasing amount of civilian production must be given up to achieve equal successive increases in military production. This shape, referred to as *concave* to the origin, indicates that the opportunity cost of either good increases as we increase the amount of it that is produced. A straight-line boundary, as in Figure 1-1, indicates that the opportunity cost of one good stays constant, no matter how much of it is produced.

FIGURE 1-2 A Production Possibilities Boundary



The negatively sloped boundary shows the combinations that are attainable when all resources are used efficiently. The production possibilities boundary separates the attainable combinations of goods, such as *a, b, c,* and *d,* from unattainable combinations, such as *e* and *f*. Points *a, b,* and *c* represent full and efficient use of society's resources. Point *d* represents either inefficient use of resources or failure to use all the available resources. If production changes from point *a* to point *b,* an opportunity cost is involved. The opportunity cost of producing Δ*x* more military goods is the necessary reduction in the production of civilian goods equal to Δ*y*.

The concave shape in Figure 1-2 is the way economists usually draw a country's production possibilities boundary. The shape occurs because each factor of production is not equally useful in producing all goods. To see why differences among factors of production are so important, suppose we begin at point *c* in Figure 1-2, where most resources are devoted to the production of military goods, and then consider gradually shifting more and more resources toward the production of civilian goods. We might begin by shifting nutrient-rich land that is particularly well suited to growing wheat. This land may not be very useful for making military equipment, but it is very useful for making certain civilian goods (like bread). This shift of resources will therefore lead to a small reduction in military output but a substantial increase in civilian output. Thus, the opportunity cost of producing a few more units of civilian goods, which is equal to the forgone military output, is small. But as we shift more and more resources toward the production of civilian goods, and therefore move along the production possibilities boundary toward point *a,* we must shift more and more resources that are actually quite well suited to the production of military output, like aerospace engineers or the minerals needed to make gunpowder. As we produce more and more civilian goods (by devoting more and more resources to producing them), the amount of military output that must be forgone to produce one *extra* unit of civilian goods rises. That is, the opportunity cost of producing one good rises as more of that good is produced.

Four Key Economic Problems

Modern economies involve millions of complex production and consumption activities. Despite this complexity, however, the basic decisions that must be made are not very different from those that were made in ancient and primitive economies in which people worked with few tools and bartered with their neighbours. Nor is the essence of the decisions in modern, complex economies different from those in current-day developing economies, where many people struggle for their daily survival. In all cases, scarcity, opportunity cost, and the need for choice play crucial roles. Whatever the economic system, whether modern or ancient or complex or primitive, there are four key economic problems.

resource allocation The allocation of an economy's scarce resources among alternative uses.

1. What Is Produced and How? This question concerns the *allocation* of scarce resources among alternative uses. This **resource allocation** determines the quantities of various goods that are produced. Choosing to produce a particular combination of goods means choosing a particular allocation of resources among the industries or regions producing the goods. What determines which goods are produced and which ones are not?

Furthermore, because resources are scarce, it is desirable that they be used efficiently. Hence, it matters which of the available methods of production is used to produce each of the goods. What determines which methods of production get used and which ones do not? Any economy must have some mechanism by which these decisions about resource allocation are made.

Is there some combination of the production of goods that is "better" than others? If so, should governments try to alter the pattern of production in this direction? Could they achieve this if they tried?

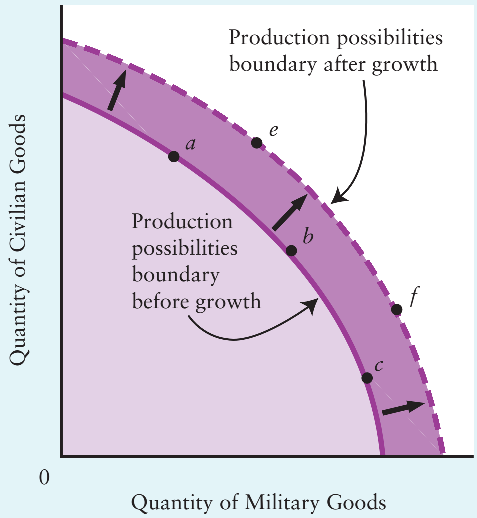
2. What Is Consumed and by Whom? Economists seek to understand what determines the distribution of a nation's total output among its people. Who gets a lot, who gets a little, and why? Should governments care about this *distribution* of consumption and, if so, what tools do they have to alter it?

If production takes place on the production possibilities boundary, then how about consumption? Will the economy consume exactly the same goods that it produces? Or will the country's ability to trade with other countries permit the economy to consume a different combination of goods?

3. Why Are Resources Sometimes Idle? Sometimes large numbers of workers who would like to have jobs are unable to find employers to hire them. At the same time, the managers and owners of offices and factories could operate at a higher level of activity—that is, they could produce more goods and services. For some reason, however, these resources—land, labour, and factories—lie idle. Thus, in terms of Figure 1-2, the economy sometimes operates inside its production possibilities boundary.

Why are resources sometimes idle? Should governments worry about such idle resources, or is there some reason to believe that such occasional idleness is necessary for a well-functioning economy? Is there anything governments can do to reduce such idleness?

FIGURE 1-3 The Effect of Economic Growth on the Production Possibilities Boundary



Economic growth shifts the boundary outward and makes it possible to produce more of all products. Before growth in productive capacity, points *a, b,* and *c* were on the production possibilities boundary and points *e* and *f* were unattainable. After growth, points *e* and *f* and many other previously unattainable combinations are attainable.

4. Is Productive Capacity Growing? The capacity to produce goods and services grows rapidly in some countries, grows slowly in others, and actually declines in others. Growth in productive capacity can be represented by an outward shift of the production possibilities boundary, as shown in Figure 1-3. If an economy's capacity to produce goods and services is growing, some combinations that are unattainable today will become attainable in the future. What are the determinants of such growth? Are there some undesirable side effects of growth? Can governments do anything to influence economic growth?

Economics and Government Policy

Questions relating to what is produced and how, and what is consumed and by whom, fall within the realm of microeconomics. **Microeconomics** is the study of the causes and consequences of the allocation of resources as it is affected by the workings of the price system and government policies that seek to influence it. Questions relating to the idleness of resources and the growth of the economy's productive capacity fall within the realm of macroeconomics. **Macroeconomics** is the study of the determination of economic aggregates, such as total output, total employment, interest rates, the price level, and the rate of economic growth.

microeconomics The study of the causes and consequences of the allocation of resources as it is affected by the workings of the price system.

macroeconomics The study of the determination of economic aggregates such as total output, the price level, employment, and growth.

The design and effectiveness of government policy is relevant to discussing all four economic problems. When asking what combination of goods and services is produced in