MACROECONOMICS

Fifth Canadian Edition

OLIVIER BLANCHARD | DAVID R. JOHNSON

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FIFTH CANADIAN EDITION

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PEARSON
Toronto

À Noelle	***To Susan***
O.B.	***D.J.***

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ABOUT THE AUTHORS

Olivier Blanchard

Olivier Blanchard is the Robert M. Solow Professor of Economics at the Massachusetts Institute of Technology. He did his undergraduate work in France and received a Ph.D. in economics from MIT in 1977. He taught at Harvard from 1977 to 1982 and has taught at MIT since 1983. He has frequently received the award for best teacher in the department of economics. He is currently on leave from MIT and serves as the Chief Economist at the International Monetary Fund.

He has done research on many macroeconomic issues, including the effects of fiscal policy, the role of expectations, price rigidities, speculative bubbles, unemployment in Western Europe, transition in Eastern Europe, the role of labour market institutions, and the various aspects of the current crisis. He has done work for many governments and many international organizations, including the *World Bank*, the *IMF*, the *OECD*, the *EU Commission*, and the *EBRD*. He has published over 150 articles and edited or written over 20 books, including *Lectures on Macroeconomics* with Stanley Fischer.

He is a research associate of the National Bureau of Economic Research, a fellow of the Econometric Society, a member of the American Academy of Arts and Sciences, and a past Vice President of the American Economic Association.

He currently lives in Washington, D.C. with his wife, Noelle. He has three daughters: Marie, Serena, and Giulia.

David Johnson

David Johnson is Professor of Economics at Wilfrid Laurier University, and Education Policy Scholar at the C. D. Howe Institute.

Professor Johnson's areas of specialty are macroeconomics, international finance, and, more recently, the economics of education. His published work in macroeconomics includes studies of Canada's international debt, the influence of American interest rates on Canadian interest rates, and the determination of the exchange rate between Canada and the United States. His 2005 book *Signposts of Success*, a comprehensive analysis of elementary school test scores in Ontario, was selected as a finalist in 2006 for both the Donner Prize and the Purvis Prize. He has also written extensively on inflation targets as part of monetary policy in Canada and around the world. His primary teaching area is macroeconomics. He is coauthor with Olivier Blanchard of *Macroeconomics* the sixth U.S. edition.

Professor Johnson received his undergraduate degree from the University of Toronto, his Master's degree from the University of Western Ontario, and his Ph.D. in 1983 from Harvard University, where Olivier Blanchard served as one of his supervisors. He has worked at the Bank of Canada and visited at the National Bureau of Economic Research, Cambridge University, and most recently at the University of California, Santa Barbara as Canada–U.S. Fulbright Scholar and Visiting Chair.

Professor Johnson lives in Waterloo, Ontario, with his wife Susan, who is also an economics professor. They have shared the raising of two children, Sarah and Daniel. When not studying or teaching economics, David plays Oldtimers' Hockey and enjoys cross-country skiing in the winter and sculling in the summer. For a complete change of pace, Professor Johnson has been heavily involved in the Logos program, an after-school program for children and youth at First Mennonite Church in Kitchener, Ontario.

BRIEF CONTENTS

CONTENTS

FOCUS BOXES

PREFACE

We had two main goals in writing this book:

- To make close contact with current macroeconomic events: What makes macroeconomics exciting is the light it sheds on what is happening around the world, from the major economic crisis that has engulfed the world since 2008, to the budget deficits of the United States, to the problems of the euro area, to high growth in China. The Canadian policy response to world events is a significant part of the story in this book. These events and responses—and many more—are described in the book, not in footnotes, but in the text or in detailed Focus boxes. Each box shows how you can use what you have learned to get an understanding of these events. Our belief is that these boxes not only convey the "life" of macroeconomics, but also reinforce the lessons from the models, making them more concrete and easier to grasp.
- To provide an integrated view of macroeconomics: The book is built on one underlying model, a model that draws the implications of equilibrium conditions in three sets of markets: the goods market, the financial markets, and the labour market. Depending on the issue at hand, the parts of the model relevant to the issue are developed in more detail while the other parts are simplified or lurk in the background. But the underlying model is always the same. This way, you will see macroeconomics as a coherent whole, not a collection of models. And you will be able to make sense not only of past macroeconomic events, but also of those that unfold in the future.

New to this Edition

- Chapter 1 starts with a history of the crisis, giving a sense of the world of macroeconomics, and setting up the issues to be dealt with throughout the book.
- Chapter 2 and the appendix on national income accounting uses the new presentation of Canada's national accounts announced in the fall of 2012.
- Chapter 4, the initial chapter on monetary policy and the *LM* curve, includes a treatment of the case where the central bank sets the interest rate.
- Chapters 6, 7, and 8 include the new presentation of Canada's international payments, also revised in 2012.
- A new Chapter 11, which comes after the short- and medium-run architecture have been put in place, presents an extensive analysis of the world economic crisis. It shows how one can use and extend the short-run and medium-run analysis to understand the various aspects of the crisis, from the role of the financial system to the constraints on macroeconomic policy.
- Material on depressions and slumps has been relocated from later chapters to Chapter 11 and the material on very high inflation has been reduced and included in Chapter 24.
- A rewritten Chapter 25, on fiscal policy, is an extensive analysis of recent fiscal policy in Canada.
- Chapters 23, 24, and 25 draw the implications of the crisis for the conduct of fiscal and monetary policy in particular, and for macroeconomics in general.
- Many new Focus boxes have been introduced. Most are necessary to consider the macroeconomic events related to the crisis. The new boxes include: "The Lehman Bankruptcy, Fears of Another Great Depression, and Shifts in the Consumption Function" and "Recessions in Canada since 1981" in Chapter 3; "Bank Runs and Bank Collapses" in Chapter 4; "The U.S. Economy and the *IS-LM* Model from 2000 to 2012" in Chapter 5; "The G20 and the 2009 Fiscal Stimulus" in Chapter 7; "Sudden Stops, Safe Havens, and the Limits to the Interest-Parity Condition" in Chapter 8; "Canada's Macroeconomic Policy Response to the World Economic Crisis" in Chapter 10; "The Great Depression in North America," "Increasing Bank Leverage in the United States—the SIV," "Japan, the Liquidity Trap, and Fiscal Policy," in Chapter 11; "The Release of GDP Growth Measures in Canada and the United States: Numbers to Watch" in Chapter 13; "Labour Productivity in Canada and the United States, 1961–2011" in Chapter 17; "Temporary Foreign Workers in Canada" in Chapter 18; "Why Deflation Can Be Very Bad: Deflation and the Real Interest Rate in America During the Great Depression" in Chapter 19; "The Yield Curve in Canada and the United States in 2013" and "Are Canadian Houses Overpriced in 2013?" in Chapter 20; "LTV Ratios and Housing Price Increases from 2000 to 2007" in Chapter 24; "What is Canada's Cyclically Adjusted Budget Balance?" and "How Countries Decreased Their Debt Ratios after World War II" and "Is Fiscal Policy Neutral in the Short Run?" in Chapter 25.
- Figures and tables have been updated using the latest data available. The presentation of the national accounts and the balance in payments has been updated to the new conventions recently adopted by Statistics Canada.

Organization

The book has two central components, a core and two additional sections. An introduction precedes the core. The two sections that extend the core are followed by a review of the role of policy. The book ends with an epilogue on the history of macroeconomics.

- Chapters 1 and 2 introduce the basic facts and issues of macroeconomics.

  Chapter 1 offers a tour of the world, from Canada, to the United States, to Europe, to Japan. Some instructors may prefer to cover Chapter 1 later, perhaps after Chapter 2, which introduces basic concepts, articulates the notions of short run, medium run, and long run, and gives a quick tour of the book.

  While Chapter 2 gives the basics of national income accounting, we have put a detailed treatment of national income accounts in Appendix 1 at the end of the book. This both decreases the burden on the beginning reader and allows for a more thorough treatment in the appendix.

- Chapters 3 to 18 constitute the **core**.

  Chapters 3 to 8 focus on the **short run**. They characterize equilibrium in the goods market and in the financial markets, and they derive the basic model used to study short-run movements in output, the *IS-LM* model. The open economy material appears in Chapters 6, 7, and 8.

  Chapters 9 to 14 focus on the **medium run**. Chapter 9 focuses on equilibrium in the labour market and introduces the natural rate of unemployment. Chapter 10 develops a model based on aggregate demand and aggregate supply and show how that model can be used to understand movements in activity that come from shifts in demand. Chapter 11 adds shifts in aggregate supply and, more importantly, extends the model to look at the crisis. To understand the crisis there is a discussion of financial markets and the liquidity trap. Chapter 12 introduces the Phillips Curve and a basic tradeoff between the change in inflation and a higher level of unemployment. Chapter 13, which looks at the dynamic relation between inflation and economic activity, is a bit harder and is structured to allow an instructor to delete the chapter without loss of continuity. Chapter 14 looks at open economy issues in the medium run. In particular, there is an analysis of fixed and flexible exchange rates. Chapter 14 is also a bit harder and can also be dropped without loss of continuity.

  Chapters 15 to 18 focus on the **long run**. Chapter 15 describes the facts, showing the evolution of output over countries and over long periods of time. Chapters 16 and 17 develop a model of growth, focusing on the determinants of capital accumulation and technological progress and the role of each in growth. Chapter 18 looks at growth in the open economy. It stresses the role of net immigration and foreign capital in creating economic growth. An appendix to Chapter 18 deals with the concept of an optimal current account deficit.

- There are two sections outside the **core**.

  Chapters 19 to 22 focus on **expectations**. Expectations play a major role in most economic decisions and, by implication, in the determination of output. Chapter 19 introduces the basic tools. Chapter 20 focuses on expectations in financial markets. There is a extensive discussion of housing and the housing bubble as part of the crisis. Chapter 21 looks at investment and consumption. Chapter 22 presents complications in monetary and fiscal policy when expectations matter.

  Chapters 23, 24, and 25 return to **macroeconomic policy**. While most of the first 22 chapters discuss macroeconomic policy in one form or another, the purpose of Chapters 23 to 25 is to tie the threads together. Chapter 23 looks at the role and the limits of macroeconomic policy in general. Chapters 24 and 25 review monetary and fiscal policy. Some teachers may want to use parts or all of these chapters earlier. For example, it is easy to move forward the discussion of the government budget constraint in Chapter 25.
- Chapter 26 is a short history of the development of macroeconomic thought. It includes a section asking what we have learned from the crisis.

Alternative Course Outlines

Intermediate macroeconomics is typically taught as a single two-semester course with one instructor or as two one-semester courses, often with different instructors. The book's organization assumes two 12- or 13-week terms with some time used for evaluation and perhaps review. Some chapters are more difficult than others and would require more time in class.

If an instructor had a group of intermediate macroeconomics students for two consecutive semesters, it would make sense to use the book in the order it is written.

A first one-semester course could cover Chapters 1 through 14. This would bring the course to the end of the medium-run analysis. You could leave out Chapters 13 and 14 without loss of continuity and include some material in Chapters 23 to 25 if that were your preference.

The second one-semester course often reviews the core material, particularly if students have been away from macroeconomics for a period of time. It then covers the long run, the material on expectations and the material on policy.

Features

We have made sure never to present a theoretical result without relating it to the real world. For this purpose, in addition to discussions of facts in the text itself, we have included **Focus** boxes, which expand on a point made in the text.

The margin notes running parallel to the text create a dialogue with the reader, smoothing out the more difficult passages and allowing for a deeper understanding of the concepts and the results derived along the way.

For students who want to explore macroeconomics further, there are two features present in some chapters:

- **Short appendices** to some chapters, which show how a proposition in the text can be derived more rigorously or expanded.
- A **Further Readings** section at the end of the some chapters, as appropriate, indicates where to find more information.

Each chapter ends with three ways of making sure that the material in the chapter has been thoroughly understood:

- A **summary** of the chapter's main points.
- A list of **key terms**.
- A series of **end-of-chapter exercises**, some of them requiring access to the Internet, some of them requiring the use of a spreadsheet program.

The Teaching and Learning Package

The book comes with a number of supplements to help both students and instructors.

For Instructors:

- **Instructor's Solutions Manual.** This manual includes solutions to all end-of-chapter questions and exercises. It can be downloaded from the Pearson Canada Catalogue.
- **Test Item File.** The test bank is completely revised with additional new multiple-choice questions for each chapter.
- **TestGen.** The printed Test Item File is designed for use with the computerized TestGen package, which allows

instructors to customize, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test bank; edit existing graphics and create new graphics; analyze test results; and organize a database of tests and student results. This software allows for extensive flexibility and ease of use. It provides many options for organizing and displaying tests, along with search and sort features. The software and the Test Item File can be downloaded from the Pearson Canada Catalogue.

- **Digital Image Library.** We have digitized the complete set of figures, graphs, and charts from the book. These files can be downloaded from the Pearson Canada Catalogue.
- **PowerPoint Lecture Slides.** These electronic slides provide section titles, tables, equations, and graphs for each chapter and can be downloaded from the Pearson Canada Catalogue.
- **Technology Specialists.** Pearson's Technology Specialists work with faculty and campus course designers to ensure that Pearson technology products, assessment tools, and online course materials are tailored to meet your specific needs. This highly qualified team is dedicated to helping schools take full advantage of a wide range of educational resources, by assisting in the integration of a variety of instructional materials and media formats. Your local Pearson Education sales representative can provide you with more details on this service program.
- **CourseSmart.** CourseSmart goes beyond traditional expectations, providing instant, online access to the textbooks and course materials you need at a lower cost for students. And even as students save money, you can save time and hassle with a digital eTextbook that allows you to search for the most relevant content at the very moment you need it. Whether it's evaluating textbooks or creating lecture notes to help students with difficult concepts, CourseSmart can make life a little easier. See how when you visit **www.coursesmart.com/**instructors.
- **Pearson Custom Library.** For enrollments of at least 25 students, you can create your own textbook by choosing the chapters that best suit your own course needs. To begin building your custom text, visit **www.pearsoncustomlibrary.com.** You may also work with a dedicated Pearson Custom editor to create your ideal text—publishing your own original content or mixing and matching Pearson content. Contact your local Pearson Representative to get started.
- **peerScholar.** Firmly grounded in published research, peerScholar is a powerful online pedagogical tool that helps develop your students' critical and creative thinking skills. peerScholar facilitates this through the process of creation, evaluation, and reflection. Working in stages, students begin by submitting a written assignment. peerScholar then circulates their work for others to review, a process that can be anonymous or not, depending on your preference. Students receive peer feedback and evaluations immediately, reinforcing their learning and driving the development of higher-order thinking skills. Students can then resubmit revised work, again depending on your preference. Contact your Pearson Representative to learn more about peerScholar and the research behind it.

For Students:

- **Spreadsheets.** Most of the chapters have one or more spreadsheets associated with the material in the chapter. These spreadsheets allow the student to work through a large number of calculations related to the chapter material. These spreadsheets can be downloaded by instructors from the Pearson Canada Catalogue.
- **CourseSmart.** CourseSmart goes beyond traditional expectations, providing instant, online access to the textbooks and course materials you need at an average savings of 60%. With instant access from any computer and the ability to search your text, you'll quickly find the content you need, no matter where you are. And with online tools like highlighting and note-taking, you can save time and study efficiently. See all the benefits at **www.coursesmart.com/students.**

Acknowledgments and Thanks

Any book owes much to many. A fifth edition begins with all those who worked on the previous Canadian editions and then on the numerous American editions. There are two students who require special thanks: Ewelina Sinkiewicz, who prepared the data for many of the figures in the fourth edition, and Greg Lang, who undertook the same task for the third edition. Greg Lang put a great deal of effort into the spreadsheet exercises that supplement the book. A group of students who need to be thanked are the many students who have taken Economics 290 and 390 at Wilfrid Laurier University over many years. They are the testers for many of my ideas on macroeconomics.

I was blessed with four excellent instructors in macroeconomics at the graduate level: David Laidler, Michael Parkin, Benjamin Friedman, and Olivier Blanchard. These professors taught macroeconomics in a way that made it engaging and exciting. I hope I have passed on some of their enthusiasm and knowledge.

Alastair Robertson, who was a superb colleague for many years in teaching intermediate macroeconomics at WLU, taught me a lot about teaching this subject.

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Xavier de Vanssay, York University

Robert Gateman, University of British Columbia

Jean-François Tremblay, University of Ottawa

Finally I would like to thank my wife Susan. I benefit so much from her love and support.

David Johnson,
Wilfrid Laurier University
Waterloo, Ontario

The Core: Introduction

The first two chapters of this book introduce you to the issues and the approach of macroeconomics.

Chapter 1

Chapter 1 takes you on a macroeconomic tour of the world. It starts with a look at the economic crisis and its aftermath, which have dominated the world economy since the late 2000s. The tour includes Canada, and stops at three of the world's major economic powers: the United States, the euro area, and China.

Chapter 2

Chapter 2 takes you on a tour of the book. It defines the three central variables of macroeconomics: output, unemployment, and inflation. It then introduces the three time periods around which the book is organized: the short run, the medium run, and the long run.

CHAPTER

1

A Tour of the World

What is macroeconomics? The best way to answer is not to give you a formal definition, but rather to take you on an economic tour of the world, to describe both the main economic event since 2000 and the issues that keep macroeconomists and macroeconomic policy makers awake at night.

At the time of this writing (in 2013), macroeconomic policy makers are not sleeping well and have not slept well in a long time. In 2008, the world economy entered a major macroeconomic crisis, the largest one since the Great Depression. World output growth, which typically runs at 4 to 5% a year, was actually negative in 2009. Since then, growth has turned positive, and the world economy is slowly recovering. But the crisis has left scars, and many worries remain.

Our goal in this chapter is to give you a sense of these events and of some of the macroeconomic issues confronting different countries today. There is no way we can take you on a full tour. We begin with an overview of the crisis and its aftermath. Then we stop to look at details in Canada, the United States, and Europe. The tour ends in China, which was not much affected by the crisis. The ever-increasing development of China and the integration of its billion-plus people into the world economy is the other major story of the world economy in the last 25 years.

Section 1-1 looks at the crisis.

Section 1-2 looks at Canada.

Section 1-3 looks at the United States.

Section 1-4 looks at the euro area.

Section 1-5 looks at China.

Section 1-6 concludes and looks ahead.

Read this chapter as you would read an article in a newspaper or magazine. Do not worry about the exact meaning of the words or about understanding all the arguments in detail: The words will be defined and the arguments further developed in later chapters. Regard this chapter as background, intended to introduce you to the issues of macroeconomics. If you enjoy reading this chapter, you will probably enjoy reading this book. Indeed, once you have read the book, come back to this chapter; see where you stand on the issues, and judge how much progress you have made in your study of macroeconomics.

1-1 | The World Economic Crisis in 2008 and 2009

Table 1–1 gives you output growth rates for the world economy, for advanced economies, and for other countries separately, since 2000 and ending with the forecasts from the International Monetary Fund for 2012, 2013, and 2014.* As you can see, from 2000 to 2007 the world economy had a sustained expansion. Annual average world output growth was 4.0%, with advanced economies (the group of 30 or so richest countries in the world) growing at 2.6% per year, and emerging and developing economies (the other 150 or so other countries in the world) growing at a much faster 6.6% per year.

In 2007, however, signs that the expansion might be coming to an end started to appear. U.S. housing prices, which had doubled since 2000, started declining. In mid-2007, as we wrote the previous edition of this book, we described how economists were divided as to whether this might lead to a recession—a decrease in output. Optimists believed that, while lower housing prices might lead to lower housing construction and to lower spending by consumers, the Fed (the short name for the U.S. central bank, formally known as the *Federal Reserve Board*) could lower interest rates to stimulate demand and avoid a recession. Pessimists believed that the decrease in interest rates might not be enough to sustain demand, and that the United States might go through a short recession.

Even the pessimists turned out not to be pessimistic enough. As housing prices continued to decline, falling by about 30% in total, it became clear that many of the mortgage loans that had been given out during the earlier expansion were of poor quality. Many of the borrowers had taken too large a loan and were increasingly unable to make mortgage payments. And, with declining housing prices, the value of their mortgage often exceeded the price of the house, giving them an incentive to default. This was not the worst of it: The banks that had issued the mortgages had often bundled and packaged them together into new securities and then sold these securities to other banks and investors. These securities had often been repackaged into more new securities, and so on. The result is that many banks, instead of holding the mortgages themselves, held these securities, which were so complex that their value was nearly impossible to assess.

"Banks" here actually means "banks and other financial institutions." But this is too long to write and we do not want to go into these complications in this chapter.

This complexity and opaqueness turned a housing price decline into a major financial crisis, a development that very few economists had anticipated. Not knowing the quality of the assets that other banks had on their balance sheets, banks became very reluctant to lend to each other for fear that the bank to which they lent might not be able to repay. Unable to borrow, and with assets of uncertain value, many banks found themselves in trouble. On September 15, 2008, a major bank, Lehman Brothers, went bankrupt. The effects were dramatic. Because the links between Lehman and other banks were so opaque, many other banks appeared at risk

TABLE 1–1 World Output Growth since 2000

Percent	2000–2007 (average)	2008	2009	2010	2011	2012	2013	2014
World	4.0	2.8	−0.6	5.2	3.9	3.1	3.3	4.0
Advanced economies	2.6	0.1	−3.5	3.0	1.6	1.2	1.2	2.3
Emerging and developing economies	6.6	6.0	2.7	7.6	6.4	5.0	5.3	5.7

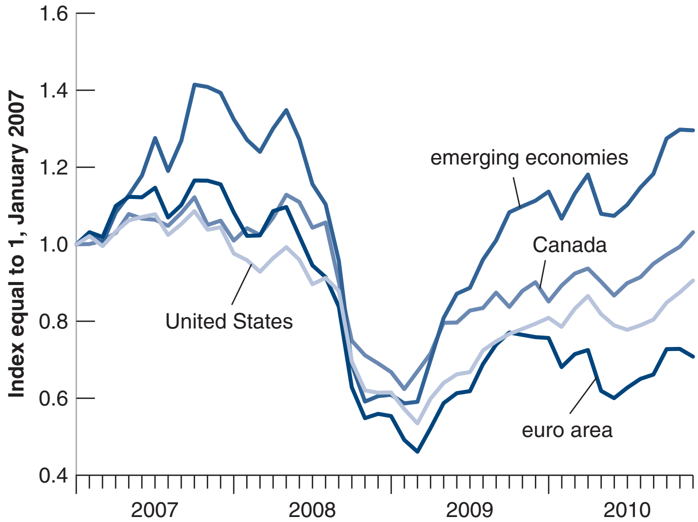
Source: Data from International Monetary Fund, World Economic Outlook Database, April 2013. The numbers for 2012, 2013, and 2014 are estimates or forecasts as of 2013.

*Where data were not yet available at the time of writing, throughout this chapter numbers for 2012, 2013, and 2014 are estimates or forecasts as of spring 2013.

FIGURE 1–1

Stock Prices in Canada, the United States, the Euro Area, and Emerging Economies, 2007–2010

Source: Data from USA, Haver Analytics S11ACD; Euro area, Haver Analytics S023ACD; Emerging economies, Haver Analytics S200ACD; Canada, CANSIM II Variable V122620



of going bankrupt as well. For a few weeks, it looked as if the whole financial system might collapse.

This financial crisis quickly turned into a major economic crisis. Stock prices collapsed. Figure 1–1 plots the evolution of four stock price indexes, for the United States, for Canada, for the euro area, and for emerging economies, from the beginning of 2007 over the crisis period. The indexes are set equal to 1 in January 2007. Note how, by the end of 2008, stock prices had lost half or more of their value from their previous peak. Note also that, despite the fact that the crisis originated in the United States, stock market prices in the rest of the world had decreased by as much as their U.S. counterparts.

> The Great Depression in the United States saw four years of negative output growth from 1929 to 1932. The unemployment rate peaked at 24.9%. Canada had a very similar experience.

Hit by the decrease in housing prices and the collapse in stock prices, and worried that this might be the beginning of another Great Depression, Americans sharply cut their consumption. Auto sales plummeted. Worried about sales and uncertain about the future, firms sharply cut back investment. With house prices dropping and many vacant homes on the market, very few new homes were built in the United States. In the third quarter of 2008, U.S. output growth turned negative and remained so in 2009.

One might have hoped that the crisis and the accompanying unemployment would remain largely contained in the United States. As Table 1–1 and Figure 1–1 both show, this was not the case. The U.S. crisis quickly became a world crisis. Other countries were affected through two channels. The first channel was trade. As U.S. consumers and firms cut spending, part of the decrease fell on imports of foreign goods. Looking at it from the viewpoint of countries exporting to the United States, their exports went down, and so, in turn, did their output. The second channel was financial. U.S. banks, badly needing funds in the United States, repatriated funds from other countries, creating problems for banks in those countries as well. As stock prices fell all over the world, consumers lost confidence and firms reduced investment. The result was not just a U.S. but a world recession. By 2009, average growth in advanced economies was –3.5%, by far the lowest annual growth rate since the Great Depression. Growth in emerging and developing economies remained positive but was about 3 percentage points lower than the 2000–2007 average.

Since then, thanks to strong monetary and fiscal policies and to the slow repair of the financial system, the two North American economies have returned to positive, if much slower, growth. The euro area continues to struggle. What do we mean by strong monetary and fiscal policy?

One policy response to the crisis was an immediate reduction in interest rates. Figure 1–2 shows interest rates on the U.S. dollar, euro, and Canadian dollar 3-month bank deposits since 2000. Interest rate reductions began in 2008. These interest rate reductions were designed to

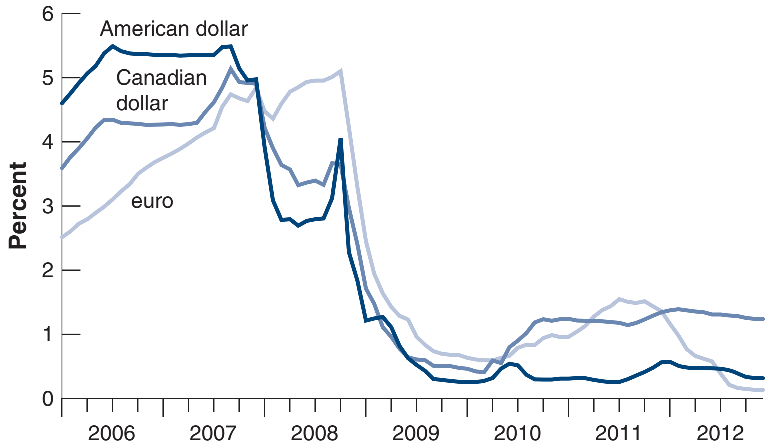


FIGURE 1–2

Interest Rates in Three Currencies since the Crisis

Source: Data from LIBOR interbank 3-month rates: Canadian dollar, CAD3MTD156N; American dollar, USD3MTD156N; euro, EUR3MTD156N. Federal Reserve Economic Database (FRED). http://research.stlouisfed.org.fred2/

increase demand and prevent an even larger fall in GDP. The changes in monetary policy were implemented swiftly.

There was a decisive fiscal policy response in 2009. In the United States, in Europe, and in Canada, taxes were cut and government spending was increased. This was partly a result of international agreements in 2008 that all the advanced economics would increase government spending or reduce taxes together. Figure 1–3 shows the magnitude of the increase in the budget deficits.

The figure shows the budget deficit as a percentage of GDP so that it is easy to compare across the different economies. It is also the budget deficit for all governments put together, not just federal or central governments. This is important because many countries, like Canada, have a federal structure, and provincial or state governments are very important. The United States started the crisis with the biggest deficit and increased the biggest deficit by the largest amount. Before the crisis, Canadian governments were running a small budget surplus, which is the meaning of a negative budget deficit. The euro area countries were also near a surplus. Then, in 2009 and 2010 all three economies used expansionary fiscal policy to maintain demand and prevent an even more severe recession.

Figure 1–3 highlights one of the important issues facing almost all advanced economy countries in 2013. How quickly should the budget deficit be reduced? You may have realized that, as output recovers further and unemployment gradually decreases, revenues will increase and some of the spending will be phased out. This is indeed likely to be the case, and Figure 1–3 shows a reduction in deficits. However, all three deficits are large and positive even in 2014. A 5% deficit in the United States is still too large a number and creates a steadily

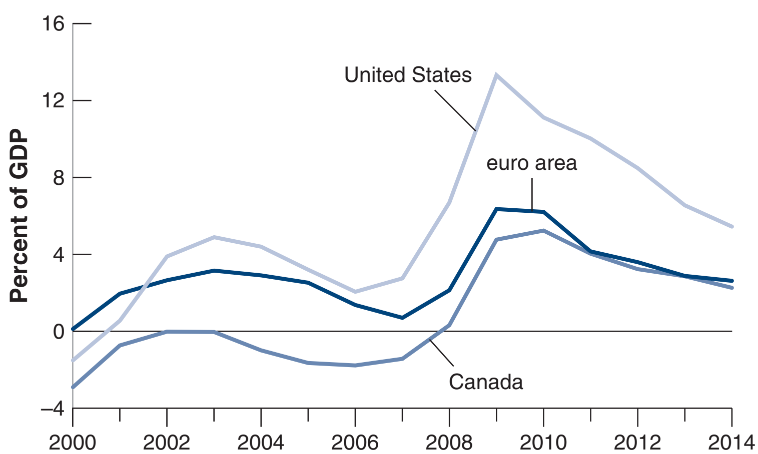


FIGURE 1–3

Budget Deficits in the United States, Canada, and the Euro Area since 2000

Source: Data from Variable GGXCNL_NGDP from the International Monetary Fund, World Economic Outlook database, April 2013.

increasing debt. In all of these countries, budget forecasts for the more distant future are even gloomier. In every country, the population is aging and benefits to the elderly are increasing. As populations age, health expenditures grow quickly. In all these countries, governments provide significant public health care. Many believe that the United States does not have public health care. This is incorrect. The U.S. federal government provides health care to those over 65, and U.S. federal and state governments contribute to health care for lower-income citizens. So there is wide agreement in all countries that budget deficits must be reduced further. But there is disagreement as to both when and how to do so.

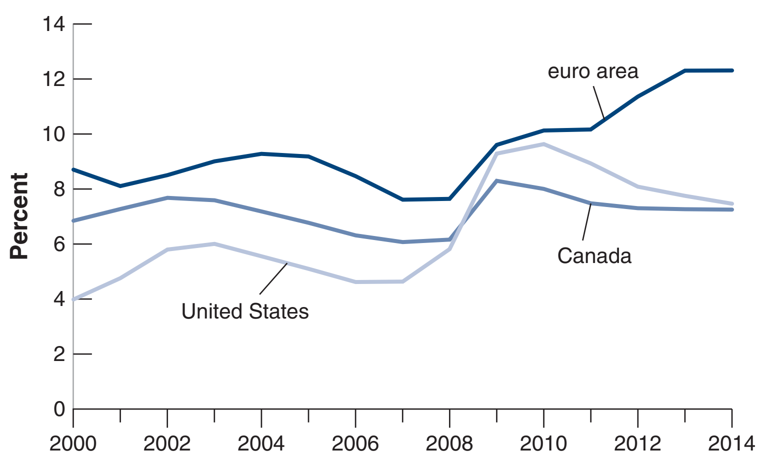
- Some economists argue that deficit reduction should start now and proceed rapidly. They argue that the credibility of governments is at stake, and that only a strong reduction will convince people that the government will do what is needed to stabilize the debt. Other economists argue, however, that too fast a reduction in the deficit would be dangerous. A reduction in the deficit can be achieved by a combination of an increase in taxes and a decrease in spending. Either one, they argue, will decrease demand and slow down growth at a time when unemployment is still very high. Their recommendation is thus to reduce the deficit, but to do it slowly and steadily. In Europe, unemployment has remained high even as the budget deficits have gradually come down. Some blame the high unemployment on over-aggressive reductions in budget deficits, often called **austerity**.
- Even if there is agreement on the need for deficit reduction, there is much less agreement on how it should be achieved. The disagreement in all countries is along political lines. Small "c" conservatives believe that it should be done primarily through decreases in spending. Small "l" liberals believe that most existing spending programs are justified, and they are more inclined to want to do the adjustment through an increase in taxes. In all countries, these positions are hard to reconcile, and, as a result, large deficits may continue for a long time to come. These problems seem most intractable in the United States with its divided government structure. In the United States, the House of Representatives has been controlled by the conservative Republican party and the Senate and presidency controlled by the more liberal Democratic party. No agreement on how to reduce the budget deficit has been achieved.

Although the worst of the crisis would appear to be over, Table 1–1 shows that growth in output has not returned to its pre-crisis level. The consequence of that slow growth is that unemployment has remained high in all three economies. Figure 1–4 shows unemployment rates in Canada, the euro area countries, and the United States. It is a depressing figure! The increase in the unemployment rate in the United States during the crisis is particularly striking, increasing from 4.6% in 2007 to 9.6% in 2010. The more recent increase in Europe is equally disturbing. Forecasts show a further increase in 2013 and 2014. In each economy

FIGURE 1–4

Unemployment Rates in the United States, Canada, and the Euro Area since 2000

Source: Data from Variable LUR from the International Monetary Fund, World Economic Outlook database, April 2013.



shown, the unemployment rate remains above the pre-crisis level. What is behind persistently high unemployment is low output growth.

The cost of high unemployment is not equally spread across society. In periods of high unemployment, it is the young and the less educated that have the most difficulty finding jobs. Persistent high unemployment is the most serious consequence of the crisis and the most difficult problem to solve.

In short, while the worst of the crisis is probably over, it has left three clear problems in its aftermath, which will keep macroeconomists and policy makers busy for many years to come. The problems are high unemployment, low output growth, and large budget deficits. We shall return to these issues in more detail at many points in the text. In the rest of this chapter, we take a closer look at recent macroeconomic events in Canada and then at events in three of the main economic powers of the world: the United States, the euro area, and China.

1-2 | Canada

When economists first look at a country, the first two questions they ask are: How big is the country, from an economic point of view? And what is its standard of living? To answer the first, they look at output—the level of production of the country as a whole. To answer the second, they look at output per person. The answers, for Canada and the United States, are given in Figure 1–5. We will look further at the United States in section 1-3.

Canada is a tiny portion of the world economy, accounting for a mere 2.5% of world output. The standard of living in Canada is very high; US$51,400 per person per year of output was produced in Canada in 2012. In the measure used in Figure 1–5, the standard of living in Canada is actually slightly higher than that in the United States. We will learn later that measuring and making exact comparisons of the standard of living between countries are not quite that straightforward. By most other measures, output per person in Canada is slightly lower than that in the United States. However, compared to nearly every other country in the world,

Can you guess which countries have a higher standard of living than Canada or the United States? Hint: *Think of oil producers and financial centres. For answers, go to www.imf.org/external/pubs/ft/weo/2011/01/weodata/weoselgr.aspx and look for "Gross Domestic Product per capita, in current prices."*

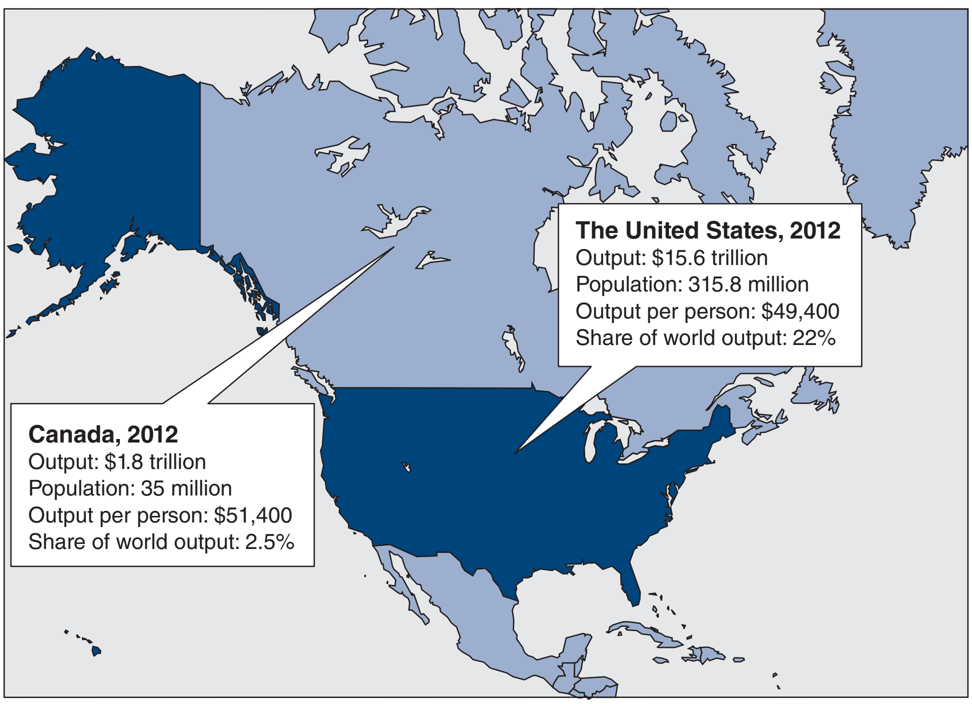


FIGURE 1–5

Canada and the United States

Source: Various tables on the OECD Web site: www.oecd.org

TABLE 1–2 Growth, Unemployment, and Inflation in Canada, 1980–2014

Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012	2013	2014
Output growth rate	2.7	2.8	1.0	−2.8	3.1	2.6	1.8	1.4	2.4
Unemployment rate	9.4	7.0	6.1	8.9	8.0	7.5	7.3	7.3	7.2
Inflation rate	4.3	2.3	2.3	0.3	1.8	2.9	1.5	1.5	1.8

Source: Data from International Monetary Fund, World Economic Outlook Database, April 2013. Figures for 2013 and 2014 are forecasts.

output per person in Canada and in the United States is very high. Very few countries in the world have a higher standard of living than Canada and the United States.

When economists want to dig deeper and look further at the state of health of the country's economy, they look at three other basic variables:

- *Output growth*—the rate of change of output
- The *unemployment rate*—the proportion of workers in the economy who are not employed and are looking for a job
- The *inflation rate*—the rate at which the average price of the goods in the economy is increasing over time

Numbers for the three variables for the Canadian economy are given in Table 1–2. To put current numbers in perspective, the first column gives the average value of the rate of growth of output, the unemployment rate, and the inflation rate in Canada for the period 1980 to 1999. The next columns look at the more recent years, giving you first average numbers for the period 2000 to 2007, and then numbers for each year from 2008 to 2014. The numbers for 2012 to 2014 are estimates and forecasts as of 2013.

By looking at the first two columns, you can see why, in 2007, just before the crisis, economists felt good about the Canadian economy. The rate of growth of the economy since 2000 had been 2.8%, slightly higher than the previous 20-year average. Importantly, the average unemployment rate since 2000 was 7.0%, substantially lower than in the previous 20 years. And inflation was low, 2.3% on average since 2000, again substantially lower than it had been in the past 20 years.

Then the world economic crisis came, and you can see it in the numbers from 2008 onward. Although Canada did not cause the crisis, it was severely affected by the crisis. Output growth slowed dramatically in 2008 and was negative in 2009. Unemployment increased from 6.1% in 2008 to 8.9% in 2009. Inflation declined in 2009 to 0.3%. Many considered this rate of inflation to be dangerously low. Inflation has rebounded to remain between 1 and 3% since 2010.

Output growth in Canada has been positive since 2010; however, in 2011 and 2012, and in the forecasts for 2013 and 2014, output growth remains low by historical standards. The unemployment rate, while it has dropped well below its 2009 peak of 8.9%, remains above its average value from 2000 to 2007 and well above the 2006 level of 6.1%.

1-3 | The United States

In fact, with Canada at only 2.5% of the world economy, it is unlikely Canada could cause a world economic crisis.

The data in Table 1–3 that describe the United States economy since 2000 mirror the data for Canada in Table 1–2. However, you can be certain that it was events in the United States driving events in Canada during the crisis and not the other way around! As the U.S. economy went into a severe recession, the Canadian economy followed. Much of Canada's economy

TABLE 1–3 Growth, Unemployment, and Inflation in the United States, 1980–2014									
Percent	1980–1999 (average)	2000–2007 (average)	2008	2009	2010	2011	2012	2013	2014
Output growth rate	3.1	2.6	−0.3	−3.0	2.4	1.8	2.2	1.8	3.0
Unemployment rate	6.5	5.0	5.8	9.3	9.6	8.9	8.0	7.7	7.4
Inflation rate	4.3	2.8	3.8	−0.3	1.6	3.1	2.0	1.8	1.7

Source: Data from International Monetary Fund, World Economic Outlook Database, April 2013. Figures for 2013 and 2014 are forecasts.

depends on sales of exports to the United States, and the automobile industries in the two countries are highly integrated.

You can see that, although Tables 1–2 and 1–3 are similar in many respects, the recession in the United States was more severe than the recession in Canada. There were two years of negative output growth, 2008 and 2009. The total percentage fall in U.S. output was larger. The increase in the unemployment rate in the United States was larger. From 2006, where unemployment was 5.8%, unemployment peaked at 9.6% in 2009. Unemployment had already risen to 9.3% in 2008. Unemployment has been very slow to fall in the United States and is expected to remain well above its pre-crisis level into 2014.

Finally, inflation in the United States was actually negative in 2009. As we shall see later in the course, negative inflation can create particular problems. However, inflation has remained low and positive after 2010 and the danger of a long period of negative inflation appears to have passed.

In the Great Depression, inflation was negative for 5 years from 1929 to 1934. In Japan, prices fell slightly over many years beginning in 1999. Negative inflation has been accompanied by very slow growth in Japan.

1-4 | The Euro Area

Until a few years ago, the official name was the European Community, or EC. You may still encounter that name.

In 1957, six European countries decided to form a common European market—an economic zone where people and goods could move freely. Since then, 21 more countries have joined, bringing the total to 27. This group is now known as the **European Union**, or EU for short.

euro the common currency used by euro area member countries.

In 1999, the European Union decided to go one step further and started the process of replacing national currencies with one common currency, called the *euro*. Only eleven countries participated at the start; since then, six more have joined. Some countries, in particular the United Kingdom, have decided not to join, at least for the time being. The official name for the group of member countries is the **euro area**. The transition took place in steps. On January 1, 1999, each of the 11 countries fixed the value of its currency to the euro. For example, 1 euro was set equal to 6.56 French francs, to 166 Spanish pesetas, and so on. From 1999 to 2002, prices were quoted both in national currency units and in euros, but the euro was not yet used as currency. This happened in 2002, when euro notes and coins replaced national currencies. Seventeen countries now belong to this *common currency* area.

euro area the 17 countries, as of 2013, that replaced national currencies with the euro.

European Union the 27 countries, as of 2013, that form an economic zone where people and goods move freely.

The area also goes by the names of "euro zone" or "euroland." The first sounds too technocratic, and the second reminds one of Disneyland. We shall avoid them.

As you can see from Figure 1–6, the euro area is a strong economic power. Its output is nearly equal to that of the United States, and its standard of living is not far behind. (The European Union as a whole has an output that exceeds that of the United States.)

The euro area has existed only since 1999 and membership has increased; numbers for 1980 to 1999 are constructed by adding national numbers for each of the 17 current member countries.

Table 1–4 presents the recent economic data from the euro area, the 17 countries currently using the euro as their currency. Look at the first two columns of Table 1–4. Even during the pre-crisis period, from 2000 to 2007, the euro area was not doing as well as the United States or Canada. Output growth was lower than in the United States or Canada over the same period. Unemployment was substantially higher than in the United States or Canada.